



3 1761 08641129 5



Digitized by the Internet Archive
in 2025 with funding from
University of Toronto

ORAL HEALTH

VOLUME XVIII.

1928.

EDITOR:

Wallace Seccombe, D.D.S., F.A.C.D., Toronto, Canada.

CONTRIBUTING EDITORS:

C. N. Johnson, M.A., D.D.S., F.A.C.D.....Chicago

W. E. Cummer, D.D.S., F.A.C.D.....Toronto

DEPARTMENTS.

PROVINCIAL EDITORS' CORNER.

J. Stanley Bagnall, D.D.S.Halifax, N.S.

John W. Clay, D.D.S.Calgary, Alta.

M. L. Donigan, D.D.S.Montreal, P.Q.

Paul Geoffrion, D.D.S.Montreal, P.Q.

C. W. Parker, D.D.S.Regina, Sask.

Lieut.-Col. W. G. ThompsonHamilton, Ont.

Stanley G. McCaughey, D.D.S.Ottawa, Ont.

Emery Jones, D.D.S.New Westminster, B.C.

W. W. Wright, D.D.S.Winnipeg, Man.

TO THE DENTAL PROFESSION:

C. N. Johnson, M.A., D.D.S., F.A.C.D.

MULTUM IN PARVO:

C. A. Kennedy, D.D.S.

THE COMPENDIUM:

Thos. Cowling, B.A., D.D.S.

SCHOOL DENTISTRY:

E. A. Grant, D.D.S.

PUBLIC HEALTH SERVICE:

F. J. Conboy, D.D.S.

OF HUMAN INTEREST:

G. Merrick Singleton, D.D.S.

Published by

ORAL HEALTH PUBLISHING CO.,

Toronto, Canada.

INDEX—Volume. XVIII., 1928

PHOTOGRAPHS.

	Page
Ash, Dr. Percy A., F.A.C.D., Sydney, Australia.	
Bagnall, Dr. J. S., Charlotte- town, P.E.I.	
Black, Dr. Arthur D., Chicago, Ill.	
Brophy, Dr. Truman W., Chi- cago, Ill.	
Campbell, Dr. T. F., Galt, Ont.	
Davidson, Samuel Sproule, D.D.S., Ottawa, Ontario.	
Davis, Dr. Sherman L.	
Grove, Carl J., D.D.S., LL.B., F.A.C.D., St. Paul, Minn.	
Gysi, Alfred, D.D.S., Zurich, Switzerland.	
Hyatt, Dr. Thaddeus P., New York.	
Mulliss, Mr. William, Hamil- ton, Ontario.	
Raper, Dr. H. R., Albuquerque, N.M.	
Routley, Dr. T. C., Toronto, Ont.	
Apollonia, St., The Patron Saint of Dentistry.	
Schlosser, Dr. R. O., Chicago, Ill.	
Singleton, G. Merrick, D.D.S., Toronto, Ontario.	
Sparks, R. E., D.D.S., M.D., Kingston, Ontario.	
Thornton, Dr. A. W., Montreal.	
Walsh, Dr. Arthur L., Montreal.	
Campbell, George A., M.D., Ottawa, Ont.	654
Campbell, J. Menzies, F.R.S., D.D.S., Glasgow	510-545
Cecil, George	271-420
Charters, W. J., D.D.S., Des Moines, Iowa	365
Clark, Harold, Toronto, Ont.	
Clay, John W., D.D.S., Cal- gary, Alta. ..165-177-492-514	
Colyer, Sir Frank, K.B.E., F.R.C.S.	110
Combs, Hugh D.	357
Coupland, D. C. W., D.D.S.	252-513
Crich, W. Aubrey, D.D.S., Toronto	521
Cummer, Harold H., D.D.S., Toronto	477
Dallaire, Dr. J.	162
Davidson, Dr. S. S., Ot- tawa, Ont.	463
Donigan, M.L., D.D.S., Montreal, Que....49-49- 226-281-399-513-635	
Doxtater, Lee Walter, D.D.S., New York City..	182
Faulkner, A. W., D.D.S., Halifax, N.S.	86
Feldman, Dr. W. A.	261
French, Felix A., D.D.S., Ottawa, Ont.	559
Geoffrion, Paul, D.D.S., Mon-real, Que.48-162	
Gibson, Wm. J., D.D.S., Victoria, B.C.	466
Goodsell, J. Orton, Jr., D.D.S.	507
Graham, Duncan, M.B., Toronto, Ont.	138
Graham, Earl E., D.D.S., Chicago, Ill.	595
Grossman, Judge Moses M.	361
Grove, Carl J., D.D.S., Ph.G., LL.B., St. Paul, Minn.	577
Gurley, John E., D.D.S., F.A.C.D., San Francisco	525
Guy, William, LL.D., L.D.S., London	560
Hagey, J. W., D.D.S., Kit- chener, Ont.	478
Hayes, Louis, D.D.S., New York City	650
Hill, Delos L., D.D.S., F.A.C.D., Atlanta, Ga... 604	
Holman, W. L., B.A., M.D., Toronto, Ont.125-584	
Huet, Dr. Emile	591
Hyatt, Thaddeus P., D.D.S., F.A.C.D.	589
Jones, Emery, D.D.S., New Westminster, B.C.	293
Johnson, Czar, M.D., F.A. C.S.	17

CONTRIBUTORS.

	Page
Aiguier, J. E., D.D.S., Philadelphia	646
Appleton, J. L., D.D.S., Philadelphia	644
Appleton, G.L.T., Jr., B.S., D.D.S.	506
Ash, Percy A., D.D.S., F.A.C.D.	3
Atkey, R. H., D.D.S., St. Catharines, Ont.	483
Bagnall, Dr. J. S., Char- lottetown, P.E.I.47- 159-161-261-398-405-493- 511-563-622	
Banzaff, Dr. Henry L., Mil- waukee, U.S.A.	84
Blayney, J. R., B.S., D.D.S.	378
Bodecker, C.E., D.D.S., F.A.C.D.	202
Box, Harold K., D.D.S., Ph.D., Toronto	141
Brass, D. J., D.D.S., York- ton, Sask.	266
Burgess, George K., Wash- ington	424
Byrnes, R. R., D.D.S.	503

III

INDEX—(Continued)

	Page		Page
Dominion Dental Council Examination Results....	618	A Discussion of the Clean Milk Problem	91
Drugs Used in the Oral Cavity	646	A Tooth in the Bronchus..	562
Exodontia and After-Pain..	252	Antiseptics	208
Fifty-three Years of Successful Dental Practice	306	Apicoectomy	431
Focal Infection ...125-138-148-237-584		A Symposium on the Management of the Dental Practice	349
Further Research Required	559	Better Teeth for Better Health	543
India's Native Dentists ..	271	Burs	591
Interpretation of Dental Radiographs	473	Care of the Teeth	203
Legal Aspects of Dentistry	361	Causes of Failure in Amalgam Work, and How to Avoid Them	604
Mouth Hygiene and Public Health	372	Dental Aspects of Malignant Disease	197
Oral Focal Infection and its Relation to Systemic Diseases	293	Dental Instrument Sterilization	205
Oral Surgery	650	Dental Psychology	556
Orthodontia and the General Practitioner	479	Experimental Investigation on the Action of Eugenol, Thymol and Decomposition Products of the Pulp on the Periodontium	261
Outline of Steps in Full Denture Construction..	619-663	Food—The most Important Factor in the Family Budget	540
Periodontia	21	Hemorrhages in Oral Surgical Operations	26
Periodontia and the General Practitioner	653	How a Dental Nurse can Increase and Improve the Practice of a Modern Dentist	561
Pioneers in Canadian Dentistry	270-405-463	Immunizing Both Hard and Soft Mouth Tissue to Infection by Correct Stimulation with the Toothbrush	365
Problems of Research	424	Importance of Summer Holidays	427
Profile Registration as an Aid to Esthetics in Denture Service	477	Injuries of the Jaws	560
Rebasing Full Dentures..	476	Keeping Fit for the Practice of Dentistry	528
Report of a Case of Osteomyelitis of the Mandible Caused by a Retained Root	521	Mal-Practice	17
Safeguarding the Dentist's Interests from the Legal Standpoint	357	Minimizing Pain	440
Saskatchewan Mouth Health Campaign Promises to be a Splendid Success	63	Notes on the Dentitions of Three Bronze-Age Skeletons	510
Splint in Periodontal Treatment	482	Orthodontia Treatment and Retention	550
Synthetic Porcelain	483	Porcelain Jackets under Stress	308
The Bacteriology of Focal Infection	125	Pupils who Fail and Teeth which Decay	438
The Pathology of Focal Infection	132	Preventive Orthodontia in the Practice of Children's Dentistry	595
The Photochemical Action of Light	654	Preparation of the Patient	539
The Reception and Management of New Patients in Dental Practice.....	349	Preventive Dentistry from the Viewpoint of the Radiodentist	418
The Use of the Microscope in the Treatment of Root Canals and Vincent's Stomatitis	644	Removal of Vital Pulp..	378
Theory and Practice of Dentistry, The	3	Report of the British Research Council	275
Value of Organization, The	11	Report of Dentistry in Canada and the United States	153
SELECTED ARTICLES.		Selection of Anaesthesia for Dental Surgery	34
A Layman's View of Preventive Dentistry	78		
Abstracts from Address of the President of the American Dental Association	84		

INDEX—(Continued)

	Page
Systemic Aspects of Periodontal Disease	99
The Bacterial Invasion of Enamel	202
The Broader Cultural side of Professional Life.....	503
The Effect of Rinsing the Mouth and Brushing the Teeth upon the Number of Bacteria Present in Subsequent Rinsings ...	506
The Periodontist and His Opportunity	43
The Newer Periodontia ..	411
The Radiogram as an Aid in Diagnosis	507
The Relation between the Diseases of the Eyes and Teeth	380
The Value of the Credit Balance in Your Vital Assets Account	314
The Value of Gold Foil in Modern Practice	608
What the Dental Profession owes to the Public	70

SOCIETY PROCEEDINGS.

American Dental Association	622
American Dental Society in Europe	160-267
Canadian Dental Association	159-494
Chicago Dental Society ..	514
Combined Ontario and Canadian Dental Convention	268
Dental Association of Nova Scotia	167
Dental Forum, Milwaukee	60
Dental Society of Western Canada	630
Dentists Legal Protective Association of Ontario..	334
Dominion Dental Council vs. Canadian Dental Association	86
Dominion Dental Council Examinations	618-498
Eastern Ontario Dental Association	652
Edmonton Dental Society	651
Federation Dentaire International	267
Montreal Dental Assistants' Association	69
Montreal Dental Club	635
Official Statement Issued by the President of the Canadian Dental Association	177
Ontario Dental Association	218-268-341
Ontario Oral Hygiene Committee, Twentieth Annual Report	390
Orthodontia Club of Toronto	106
Programme of the Joint Convention of the Canadian and Ontario Associations	218

	Page
The Canadian Dental Association	159-268-340-417-454
The Canadian Medical Association	176
The 2T6 Graduates' Club, University of Toronto ..	215
Two-Day Clinic at London	547

MISCELLANEOUS.

A Confucian Belief and the Teeth	465
A Hole in One	516
Anniversary of the Patron Saint of Dentistry, Feb. 9th	42
An Appreciation—C. N. Johnson	501
Canon Cody addresses Canadian Dental Association Luncheon	339
Clemenceau's Philosophy of Life	20
Classmates of 2T3, University of Toronto	214
Dental Clinic at Canadian National Exhibition, Toronto	409
Dental Health Discussed at Kiwanis Meeting	504
Dental Index Bureau	491
Dental Service for the Byrd Antarctic Expedition	548
Dentist elected Lieutenant-Governor	505
Dentistry To-day and Tomorrow	251
Elections to Senate, University of Toronto	423
Growing Old Gracefully..	305
Griffin, Dr. Wm. A., honoured	630
Higher Standards in Dentistry	124
Hunt, Dr., Bust of the late	400
Immunity from Common Cold	196
Inspiration-Getting	277
Irwin, Dr. Alphonso, Honoured	574
Motor Car Dental Clinic in Northern Ontario	565
Nineteen Twenty-Eight ..	53
Noguchi Victim of Deadly Germ	410
Ontario Deputation Requests Government Grants for Public Dental Clinic	80
Portrait of the late Dr. R. G. McLaughlin Unveiled	318
Portrait of Honourary Dean A. E. Webster	342
Portrait and Bust of the late Dean Wilmott	342
Practitioners Course, Annual Dental, University of Toronto	80
Principles Relating to Dental Health	105

INDEX—(Continued)

	Page
Questionnaire forwarded to Ontario Dentists	436
Shall We Continue the Study of the Classics? .. Scholarships in Dentistry, University of Toronto, Session 1928-29	216
The A. W. Thornton Testimonial Banquet Report.	394
The Future Holds Promise of Longer Life	414
The Total Number Dental Students in Canada and the United States	415
Thompson, Lt.-Col. W. G., Honoured	220
Thomas, Dr. Ross, Honoured	89
Two Months' Indenture-ships for Dental Nurses To Prolong Life	630
Webster, Dr. Alfred F., Honoured	265
What I see in my Dentist.	499
	565
	509

EDITORIALS.

Advances in Dental Education	573
Canadian Dental Association, The	233-492-3
Creative Power of Science, The	629
Dental Practitioner and Research, The	174
Dentistry and the Press..	289
Dominion Dental Council.	459
More About Annal Membership in Canadian Dental Societies	117
New Year Greets Us, The.	57
New Year in Dentistry, The	681
Of Human Interest	401
Reciprocity in Dental Licenses and National Boards of Dental Examiners	517
Saskatchewan Mouth Health Campaign	237
Teeth and Focal Infection, The	345
The Value of Organized Dentistry	

EDITORIAL NOTES AND COMMENTS.

Case Histories and Queries from Practitioners	175
New University Buildings for Montreal	119
Personal Sketch of Dr. Percy A. Ash	59
Personal Sketch of Dr. Arthur Black	119

	Page
Testimonial to Dean Thornton	123
Value of Organized Dentistry, The	58

PROVINCIAL EDITORS CORNER.

Alberta	53-165-514
British Columbia	455
Manitoba	51-282-564
Maritime	47-161-398-511-563-622
Ontario	49-163-227-513
Quebec	48-161-226-281-399-513
Saskatchewan	

OFFICERS OF CANADIAN DENTAL ORGANIZATIONS.

Pages	172-230-284-571
-------------	-----------------

DR. C. N. JOHNSON TO THE DENTAL PROFESSION.

Pages	54-343-452-568-626
-------------	--------------------

MULTUM IN PARVO.

Pages ...	9-52-8-109-120-124-160-171-181-222-232-251-286-290-364-379-400-402-419-423-426-449-456-491-509-524-558-559-565-591-632
-----------	--

SCHOOL DENTISTRY

Page	110
------------	-----

PUBLIC EDUCATION AND DENTAL HEALTH.

Pages	44-107-223-278
-------------	----------------

PUBLIC HEALTH SERVICE.

Page	44
------------	----

CORRESPONDENCE.

Page	16
------------	----

OF HUMAN INTEREST.

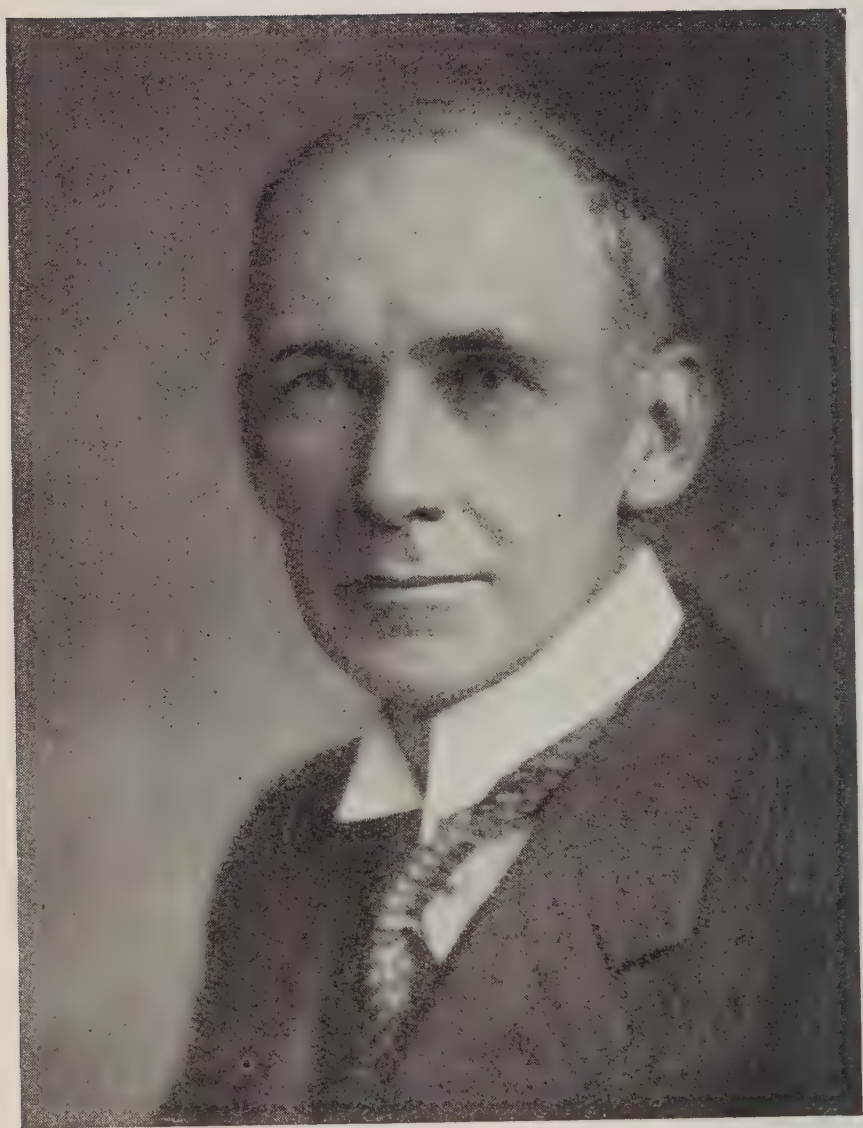
Pages —...	396-401-450-515-566-623-680
------------	-----------------------------

OBITUARY.

Armstrong, Col. G. A.	63
Brophy, Dr. Truman W...	168
Brown, Dr. W. C.	228
Day, Dr. Arthur.....	60
Fisher, Dr. R. M.	170
Hagey, Dr. Milton H. ...	171
Hoggan, Dr. J. A. C.	171
Kells, Dr. C. Edmund	287
Mallory, Dr. M. B.	318
Mayo, Dr. Caswell A. ...	116
Ramsey, Dr. E. D.	131
Rhein, Dr. M. L.	460
Winnet, Dr. A. W.	631

Character

Our character is our will,
for what we will we are.
—*Archbishop Manning.*



DOCTOR PERCY A. ASH, F.A.C.D.

*Lecturer, Faculty of Dentistry, University of Sydney and
Editor of the Dental Science Journal of Australia.*

ORAL HEALTH

*A JOURNAL THAT STANDS FOR THE "OUNCE OF
PREVENTION AS WELL AS THE POUND OF CURE"*



Vol. 18

TORONTO, JANUARY, 1928

No. 1

The Theory and Practice of Dentistry*

PERCY A. ASH, D.D.S., F.A.C.D., A.F.I.A., F.I.ARB.
(LOND.) ETC.



IN introducing me, your Dean, Dr. Seccombe, has intimated that I have been through courses of study in dentistry, law and accountancy. I confirm what he says merely because, in the course of my remarks, I shall touch upon matters which involve a knowledge of these subjects, and I do not wish you to think me presumptuous in discussing branches of learning which I do not understand.

In the first place, I wish to thank sincerely so many of you who have done me the honour of attending, for I realize that this is Centenary week at your University and that there are many more attractive items on the programme of events than to be listening to a lecture on dentistry. I do not propose, however, to discuss that particular subject, in its technical or scientific phases, at any length, but merely to impress upon you the important position which your profession occupies in the world to-day, and then deal with a few other topics which will interest you.

One of the great outstanding features in any calling in life to-day is that a young man must be properly educated if he wishes to rise superior to those around him in the particular vocation he intends to follow. Where does this education begin? Does it not commence at the time we first go to school? A good, sound, preliminary education is absolutely essential before a youth is qualified to enter any one of the professional

* Summary of address given before the Dental Students of the University of Toronto.

courses or to embark upon one of the higher class commercial pursuits. Whether the present system of early education is to blame, I shall not say, but the fact remains that very many of the younger people who are entering on life are not sufficiently educated to succeed in the particular occupation they intend to follow. Their spelling is bad, their English is bad, their general phraseology and composition are bad, and if they are sadly deficient in such rudimentary matters as these, how can they hope to make any real headway? It occurs to me that the tendency of the times is to pay insufficient attention in our schools to the correct speaking and writing of our language—a defect which must tell seriously against a man in after life unless he himself takes steps to overcome his shortcomings in that direction.

In connection with the training of students in dentistry, I suppose I may safely assume that some of you young men before me, who are going through the specified course of study, consider that you are being called upon to absorb a great amount of theory that is both irrelevant and unimportant, that your mental and physical strength is being overtaxed in consequence, and that your time might very well be occupied in learning something of a more practical nature. I can only reply that wiser heads than yours have decided that all you are taught is necessary. Remember, too, that the study of dentistry to-day is quite a different matter to what it was fifty years ago. We are no longer dentists in that old acceptance of the word, but dental surgeons and graduates in dental medicine. So many new branches have had to be introduced into the course during the past few years that the members of the teaching staff experience more or less difficulty in finding a place for them in the curriculum.

Further, we are anxious, I am sure, to have dentistry included among what are known as the higher vocations of life. In other words, we like to regard our calling as among the better type in the community; therefore, we should take the necessary steps to ensure that the students who go through our colleges have such a sound preliminary and professional education that when they graduate they will reflect credit upon the institutions where they gained their diplomas. The point I want to make is that if we wish to value ourselves as members of the dental profession and to regard our calling as scientific, our level of education must be considerably above the average,

—otherwise, the application of the term “learned profession” to us is a mockery.

Apart from the importance of maintaining their relation in the better educated community of the day, professional men should know the history of the steps by which the present stage of knowledge in their respective spheres has been earned, as well as the origin of the terms and descriptions which they require to employ. It should be considered that a sound and comprehensive general education is a necessary preliminary to the technical and scientific training. There should be no difference of opinion on that point; indeed, I go so far as to say that, with a view to maintaining the profession of dentistry on a high plane, any youth whose general education is sadly deficient should be refused admission to the central training schools of high repute.

The establishment of a satisfactory course in dentistry always involves consideration of the well-known subject of theory and practice. The lectures which I am accustomed to give at our University are chiefly theoretical, and therefore I admit that I have a distinct leaning in that direction. I know there is a tendency to pass by theory and get to practice. At first blush, that may appear the wisest course to pursue, but I venture the opinion that to be able to think correctly is the greatest asset of all. It is often said that an ounce of practice is worth a ton of theory. That saying is true only in part; it is the full grasp of the theory which generally leads to the highest class of practice, and it is mainly owing to this fact that progress in nearly all the arts and sciences during the past hundred years has been greater than in the previous five hundred. The really successful man is the one who works with his head as well as with his hands—the man who evolves sound theories and proves their value by actual practice. Such men are not very common. Often, when it comes to the point, the theorist cannot put anything into practice, but, on the other hand, the so-called practical man has no staying power if he has not learned the fundamental principles of the subject.

The pure theorist is sometimes, I admit, a dreamer, but the two words must not be confused. What is theory? It is knowledge, power, information, instruction, enlightenment, *the reasoning of the mind prior to the performance by the hands*. Let nobody despise the theoretical aspect, for, after all, can you put into practice what you have never learned? Whence

does all our knowledge come? Do the ideas just tumble out of our heads, so to speak, or do we get some or most of them by observation, by reading, and by conversation with men of brains and foresight? Bear in mind that most of the great discoveries have been helped largely by the researches of those who have gone before and placed their findings on record. This remark leads me to impress upon you the necessity of reading all the better type of current dental literature in the form of the many excellent monthly journals which are published. There you will find articles from the pens of the greatest minds in dentistry, and they have the advantage of being the latest pronouncement upon the subjects with which they deal. Text books, as prescribed by your Faculty, from which you study, are, of course, excellent and reliable, but, seeing that dentistry is such a progressive branch of science, even these become obsolete in a few years and only serve to make the bright and fresh articles in the magazines all the more attractive.

A subject of great interest to students has always been that of examinations. I say, at once, as a man who has had twenty years' experience in lecturing to and examining students, that I regard examinations as more or less of a necessary nuisance. University, profession, principals of colleges, and men of high degree in all branches of learning, have tried for years to think of some other system which will bring about the same results, but so far they have not accomplished it. I admit that I know of no scheme which can take the place of examinations, especially if they are to be of a competitive nature and medals and other prizes for proficiency are to be awarded. Can any of you suggest a better method? I say, in all modesty, that I have passed many examinations in my time. I know the long, weary hours of study and realize the gradual wearing down of the mental and physical strength, and I have experienced the weariness which overtakes one as the day of the examination approaches, when a man wants to do his best and yet feels almost at his worst. I know all that, but still cannot think of a better system. I have lectured to students for a whole year; we have conversed together outside the lecture hall, on many subjects, and have got to understand one another thoroughly, but yet, when the examination day arrives, there seems to be some relation spring up between examiner and student which is quite inexplicable. The student ap-

proaches the ordeal with a sense of nervousness. I admit at once that in all examinations for which I have ever sat, I have experienced that horrible complaint known as "cold feet."

There are so many scientific and technical branches of dentistry to discuss, that it is impossible to do any more than just mention them in an address of this kind. Among my own special subjects are: (1) The constitutional disorders which predispose to dental caries, and *vice versa*, the diseases of the mouth and teeth which give rise to systemic ailments; (2) the part which heredity plays in dental caries; (3) the process of teething and its attendant disorders; (4) normal and pathological dentitions; (5) oral hygiene; (6) the effect of climatic and social conditions upon the development of the teeth; (7) diet, in relation to caries. These are all very large and very contentious subjects, and, in one or more of their phases, are frequently discussed in the dental journals, but we are very far yet from reaching even a working basis. Regarding the great question of diet, for instance, our leading authorities differ greatly; they find it very difficult to disregard the old adage that what is one man's meat is another's poison, and realize, therefore, that a particular diet must be prescribed for the individual and not for the masses. Also, there must be continual conflict between the medical and dental professions on the question of diet, because what is good for the general constitution may be quite unsuitable for the teeth.

These are some of the subjects which now come within the province of the dentists and are helping to keep dentistry on the plane of the learned professions. As I indicated previously, a knowledge of them is essential if we wish to justify our titles of Doctor of Dental Surgery or of Dental Science or Dental Medicine, as the case may be.

It may be of interest to you for me, in passing, to spend a few moments in giving some information regarding the title of "Doctor". I suppose the great majority of people who hear a man described as a doctor conclude that he is a medical man—a physician. The history of the word "doctor" is very interesting; originally it meant a teacher, as its derivation from the Latin *docere*,—*to teach*, implies. The first reference, in connection with the word, which I have been able to find, is in Holy Scripture, where it is stated that Christ was sitting amongst the Doctors, both hearing and asking them questions. "Doctors," in this relation, certainly meant "teachers." I

found no further record until the 12th Century. It is related that in the year A.D. 1130, the degree was first conferred in law, upon Irnerius, a professor of law in the University of Bologna in Italy. The professor was a learned man and a great jurist, and the emperor of the day, anxious to confer honour upon one who had done so much for Roman law, asked the professor to choose a title for himself which nobody else had, and (history relates) Irnerius chose the title of "Doctor" and was created a Doctor of Laws. That is the first record we have anywhere in history, so far as I have been able to trace, of the title "Doctor" having been conferred as a specific degree. The title was next conferred in theology by the University of Paris, upon Peter Lombard, the famous French theologian, also Bishop of Paris. It was not until 1329, almost exactly two hundred years after it was first conferred in law, that the degree of "Doctor" was awarded in medicine, to one William Gordenio, by the College of Asti, Italy. It is difficult to trace any definite reason why the title of Doctor has become so closely associated with medicine as at the present day; we can only assume that William Gordenio was a man who treated physical ailments, and, as years passed on and others qualified in medicine and treated ailments, the idea gradually got about that a doctor was one skilled in the diseases affecting humanity.

My time is nearly up, but before concluding I wish to say a few words regarding medical jurisprudence, with special relation to the dental profession, or, in other words, the law relating to the practice of dentistry. It must not be forgotten that a person who practises any branch of the healing art is liable at any time to have an action at law brought against him for malpractice, negligence or incompetence, if he has been grossly careless or indifferent in the conduct of his work, and such an action may sometimes be brought by a patient who would never be suspected of doing such a thing. It is therefore very necessary to be on guard all the time, and especially to keep careful records of all work done and of the methods of procedure adopted. The production of these records in Court will carry much greater weight with both judge and jury than any evidence given from memory.

There is really no statutory definition of the word "negligence," and therefore case law and the opinions of the judges have to be relied upon. An acceptable definition of the word

"negligence" may be given as "the doing of something which a prudent and capable person would not have done, or the omission to do something which a capable and prudent person would have done." The law does not require a practitioner to be an expert, but it does demand a reasonable amount of knowledge and skill; any person who falls short of that should not be in practice at all. A man claiming to be a specialist in any branch is, in law, expected to possess greater knowledge and skill in that branch than a general practitioner.

In conclusion, I desire to express to you all the great pleasure I experience in speaking here this morning. I congratulate you on all you have accomplished and fully sympathize with you in any difficulties which may beset you.

Thoughts About Happiness

"It cannot be bought; if it could, the rich would all be happy. It is not confined to the physically well. Many with perfectly well bodies are miserable. It is not confined to any special race or country. It can make its home anywhere. It is neither an aristocrat nor a commoner. It has been known to walk down the street with a king on one side and a beggar on the other. It stays longest with those who are busiest doing something for others.

It loves to come into a home where there is little criticism, fault finding, egotism, and jealousy. And, best of all, Happiness is found with all those whose faith in God and love for men keep them from the black sin of all the ages—Selfishness."

A Question and an Experience-Tested Criticism

W. R. WILKINSON, D.D.S., EDMONTON.

[Dr. Wilkinson asked himself the question, "What has impressed me most in Operative Dentistry in all my years of practice?" and the answer is found in the following manuscript.

We believe Dr. Wilkinson is right, and that only a part of the Dental Service that should be rendered is receiving attention. The statement in Johnson's Operative Dentistry, referred to by Dr. Wilkinson, appeared in the Third Edition and is as follows:

"By the use of the mechanical separator, sufficient space may be obtained nearly always in a few moments for a decisive exploration. A bit of space with a gleam of light makes a world of difference in the field of observation. Where before no signs of decay was seen, it may be that a speck of dis-

colouration, brown or whitish will appear. A delicate steel point finds an opening, a sharp, thin chisel breaks the enamel roof, and the excavator possibly reveals a deep extension of decay. A condition such as this we have no right to overlook. We should know positively, either that it does or does not exist. We have no right to dismiss an examination with the word or thought, 'I guess that's all right.' It is our business to know. Opinions fathered by wishes have no value."

—EDITOR.]



THIRTY-FIVE year old difficulty of the writer is and always has been to persuade patients or their guardians to have incipient caries and structural defects, in molars and bicuspid's particularly, properly excavated and filled when these have been brought to their attention on the occasion of their visit to my office, to have pain relieved, or to have, perhaps, one or two unsightly approximal gaps restored. One would think that the three-fold argument, (1) less pain, (2) less tissue destruction, (3) less expense, which the writer has uniformly urged, should cause 99 per cent. of his patients to have this class of work attended to, whereas he must confess he believes his plea has not been more than 50 per cent. efficient.

Will one of the editors or a reader who has the panacea for this difficulty, tell us how patients are best persuaded, not "almost" but "altogether"?

The didactic part of this contribution concerns examination of teeth for cavities in interproximal spaces. I think Dr. C. N. Johnson of Chicago, in his "Operative Dentistry," claims separation should be affected between teeth where an explorer cannot get into the interproximal space to examine the surfaces.

When I read that years ago, I believed it *theoretically* and *ideally*; now, I believe it *practically*. When a patient asks for an examination, and the operator depends alone on sighting that white opaqueness that spots caries in these surfaces in a more or less advanced stage, without separation in all closed spaces, he is, I contend, neglecting a professional duty.

Practicing Dentists often see caries where opaqueness morally shows, advanced to the point of pulp exposure and, doubtless, can share with each other the chagrin consequent on making the discovery, especially if the patient is our own and has unbounded confidence in his dental adviser.

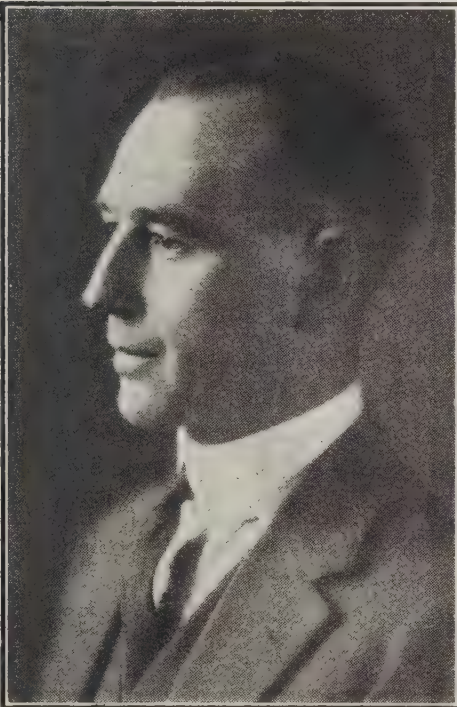
The Value of Organization

BY T. C. ROUTLEY, M.B.

General Secretary, Canadian Medical Association.



HAVING read with considerable interest the proposed Constitution and By-Laws of the Canadian Dental Association appearing in *Oral Health*, October, 1927, I am glad to take this opportunity of congratulating our brethren in Dentistry for the meritorious effort which is being put forward to bring the Dentists of Canada together. The Canadian Medical Association extends greetings, and wishes the Canadian Dental Association every success.



DOCTOR T. C. ROUTLEY.

It has been said that the real difference existing between a high powered locomotive and a pile of scrap iron is that one mass is organized while the other is not. One has heard another definition of the word organization, namely: — "Organization is the co-relation of all

the forces and factors available in the construction of a mechanism capable of producing the best results with a minimum of waste and friction." The great war taught us many things, but probably nothing more clearly than the value of organized effort; and so it is not surpassing strange that, during the past ten years, we have seen on all sides and in all walks of life, a growing tendency to concentrate and co-relate energies and activities.

The year the war closed—1918—witnessed the first real forward step for organized medicine in Canada. It was during that year that plans were laid to reorganize the Ontario

Medical Association. Although the Association, at that time, was thirty-seven years old, it reckoned its strength by a little over 400 members and some thirteen branches, with an annual income of less than \$1,000. To-day the Ontario Medical Association has more than 2,000 members, forty-seven branches and an annual income exceeding \$20,000. Concomitantly with the growth and development in Ontario, many of the other provinces in Canada became active through their various medical societies. To-day, we find nine active Provincial Medical Associations, all performing splendid service in their respective provinces, and, unitedly, forming the Canadian Medical Association, of which the writer has the honour to be General Secretary.

Perhaps it will not be amiss, and may be of some encouragement to those interested in organizing the Canadian Dental Association, if we tell you something about our trials and tribulations as well as our successes. So recently as the year 1921, the Canadian Medical Association was at the cross roads. When the Council convened that year and took stock of the situation, it was found that the organization had liabilities of more than \$18,000, and assets which were practically nil. The cause was not far to seek. During the war period when hundreds of the medical profession of Canada were overseas, membership in the Association fell away very markedly. Our Journal, which had commenced publication just two or three years prior to the outbreak of the war, continued to publish, and, during those hectic years, rendered excellent service; but printing costs mounted up, the price of paper became almost prohibitive, and it was not to be wondered that, in 1921, we found ourselves in a low financial condition. After wrestling with the problem for some time, the Council, backed by a few hundred optimistic and determined supporters, decided that the Canadian Medical Association could and would go forward. The annual fee, which had been \$5.00, was doubled. Furthermore, it was decided to float a bond issue of \$20,000 among our own members, the proceeds to be used in liquidating our accumulated indebtedness. It may be mentioned that some of the men who subscribed were very sceptical about the possibility of ever seeing their money returned. But the progress of the Canadian Medical Association since 1921 has been really remarkable. Membership has trebled; a budget in the neighbour-

hood of \$20,000 for the year 1921 has increased to just a little under \$100,000 for the year 1927; a liability of nearly \$20,000 has long since been wiped out and the Association has a credit balance at the moment of more than the original bond issue. Although the bonds were issued for a ten year period, it was possible to retire them all in less than one-half that time. Lest we be accused of being boastful, we hasten to say that we have no desire whatever to brag about our achievements, but rather do we wish to acknowledge our indebtedness to the physicians of Canada for their financial and moral support. This, and this only, is the explanation of the change which has taken place in a few short years. It might be of some interest to the reader if something were said about the work in which the Canadian Medical Association is engaged.

The science of medicine, like the science of dentistry, is ever progressive. No matter what age a doctor may attain, he is never a finished product, insofar as his profession is concerned. One of the real problems which faced organized medicine in Canada was the question of rendering assistance to the man in practice, in order that he might at least attempt to keep himself professionally up to date. The Ontario Medical Association in 1921 initiated an extra mural post graduate plan, whereby post graduate speakers were sent to the County Medical Societies throughout the province. Close upon 1,500 speakers have visited societies in Ontario during the past seven years. It was only logical that the other provinces of Canada would look upon this post graduate plan as something very desirable for themselves. The Medical Colleges throughout Canada were ready and willing to provide the speakers. Upwards of one hundred and twenty-five medical societies in the nine provinces were eager to receive them. The only remaining factor required to bring about a national post graduate scheme was the necessary funds. As we all know, distances are great in our far flung Dominion, making travelling expenses high. It therefore required a large sum of money to carry out, even in a small way, a national application of the Ontario plan. Happily for the medical profession of Canada, and also for the people whom they serve, one of our great Canadian institutions, the Sun Life Assurance Company, came to our aid by giving us \$30,000 to be spent over a period of one year, in sending speakers throughout Canada. So suc-

cessful was the scheme that the Sun Life repeated the gift for a second year, and it is with considerable pride and gratitude that we are privileged to state that two months ago the Company made us a third grant of a similar amount.

During the two years that the plan has been in operation, we have sent out 438 speakers who have given 1,242 addresses and clinics to an aggregate attendance of 36,947 physicians. It would be impossible for us to estimate the value of the service which has thus been rendered. Suffice it to say that abundant evidence is before us, both from the profession and the public, that no finer piece of work has ever been undertaken by organized medicine. Furthermore, so far as our knowledge goes, the plan is unique, not having been even approached by any other nation in the world.

We are proud of our Journal, and particularly proud of our virile young editor, Dr. A. D. Blackader of Montreal, who, although close upon eighty years of age, still possesses the vision and vigour of youth. It is said that our Journal reflects the best work which is being done by the medical profession of Canada and although it was the innocent cause of our financial undoing during the war, it has lived to see itself a strong bond which binds us together.

Just a word about our Committees which constitute the backbone of the Association. We have altogether twenty-five active committees, each one charged with a definite responsibility, and working upon some important problem associated either with our professional life or our relation to the public. During the past few years, it has been our custom to zone our committees. For example, the Committee on Legislation is located in Winnipeg. To this Committee we appoint a Chairman and six members resident in that City. In addition, each Provincial Medical Association is represented on every Committee, by two members. A nucleus of seven can conveniently hold meetings, while the balance of the Committee is kept in touch by correspondence. Furthermore, locating the Committees across Canada not only spreads the interest, but recruits for active service a large number of members.

Our Council is made up of delegates from all the provinces in a manner somewhat similar to the plan proposed by the Canadian Dental Association. Added to these delegates are the Chairmen and Secretaries of the various standing Committees, who, together with the officers, make up a Council

of something over 100 members. At our last annual meeting held in Toronto in the month of June, 1927, close upon eighty members of Council, representing every province in the Dominion, sat for three days. It certainly was an inspiration for all who attended to note the splendid representation, and, further, to listen to the excellent manner in which the members contributed to the many topics under discussion.

Having said so much about ourselves, the writer recalls a story of a California rooster which wandered afar one day into an ostrich farm. Lying half buried in the sand, he saw something which looked a bit familiar, but, never having seen an ostrich egg, he was not sure what it was until he had scratched away for some considerable time, finally bringing the egg into full view. In the course of a couple of hours, the rooster arrived at his hen yard, very tired, because he had laboriously rolled the ostrich egg all the way home. He still had strength, however, to summon his flock by crowing lustily. When the hens were all assembled, he said to them, "Ladies, I am not complaining about anything you have done, but I just want you to see what they are doing in other places." Far be it from us to crow about anything we have been able to do, but possibly, our friends in dentistry, in seeing what their colleagues in medicine are doing, will realize that they too can accomplish much for their profession by uniting as strong Provincial and Canadian Dental Associations.

We hear a great deal these days about our national status. Truly, Canada occupies a place in the world as a fully fledged nation; but a nation, to be strong, must have a national consciousness, and this can only be brought about by national unity. It is the duty of the professions of our great country to show leadership in this regard. How better can we do it than to band ourselves together, not for selfish gain, but actuated by the lofty purpose of endeavouring to make ourselves more efficient for the tasks which are daily set before us.

Again, greetings and all success to organized Dentistry in Canada.

CURIOUS EPITAPH ON DENTIST.—Stranger! Approach this spot with gravity! John Brown is filling his last cavity.

Recognition of Canadian Dental Credentials in Japan

OTTAWA DENTISTS—ATTENTION PLEASE!

DR. JOHN E. THOMPSON, who has given many years of faithful service as a dental missionary and teacher at the West China Union University, has been temporarily located in Kobe, Japan, awaiting a suitable opportunity to return to his work in China.

Dr. Thompson made application for a license to practice dentistry in Japan, but has found the government unwilling to accept a Canadian degree. A paragraph from a letter received from Dr. Thompson follows:

“24 Nakayamate-dori, 2 Chome,
“Kobe, Japan.

“You will be disappointed to learn that I have not been able to get my license. The Home Office of the Japanese Government want me to get an English degree. I am practising now as an assistant until I get my license. The British Consul thinks that it is not wise to press matters too hard here for fear that they cut me out entirely. I think that Canada ought to do something to get ‘the most favoured nation treatment’ in the matter of attaining a dental license in Japan. When it suits, we are British, when not, we are Canadians. I see by the paper some one is suggesting that Canada ought to have a minister in Tokyo. I believe it is more important in some ways to have one here than in the United States of America. Another thing,—one of our Mission got his medical license to practise in Korea. He is a Canadian with an American degree. Why this discrimination against the Canadian and the dentist? There have been several American dentists here. I do not know whether they wrote off their examinations or not.”

This is a problem that might be discussed with the Canadian Government, and members of the Ottawa Dental Society would, doubtless, be of great value to Dr. Thompson in his difficulty and also render a service to the whole profession by conferring with the department concerned. Any assistance that the Ottawa dentists may desire from other members of the profession will be gladly given that Dr. Thompson, who has already made such tremendous sacrifices, may be helped in every way possible.

Mal-Practice

CZAR JOHNSON, M.D., F.A.C.S.

[This article, though written by a physician and intended for the guidance of medical practitioners, contains much of interest to the Dental profession. The manuscript was forwarded to the Editor, who has been unable to learn where it was first published, and therefore regrets that acknowledgment cannot be given to the journal concerned.—EDITOR.]



SUIT for damages for alleged mal-practice is a spectre which the doctor has never been able to accept with equanimity.

Notwithstanding that great scientific progress has been made in the field of preventive medicine, I have been unable to find any organized educational programme for the prevention of alleged mal-practice. The well established doctrine that testifying against a brother physician is a fraternal and ethical misdemeanour, and weekly abstracts of court decisions bearing upon the subject of mal-practice published by medical journals are post mortem examinations rather than preventive medicine. In a majority of states medical defense committees assist in some capacity in the defense of mal-practice suits.

The creation of State Medical Defense Committees marked a radical departure from long established customs of the medical profession and added to scientific and purely professional activities, sociologic and economic problems. I assume that the purpose of the defense committees, as conceived and instituted by organized medicine, was mutual protection and assistance in the event of unavoidable misfortune from unwarranted prosecution for alleged negligence or mal-practice instigated by malicious, ignorant or selfish individuals. I assume that experience had taught those who were instrumental in the foundation of medical defense committees that the public is frequently careless in its acts and speech, often indifferent to medical problems and that it, and also the medical profession, may harbour individuals who are malicious or avaricious. If my assumptions are correct, there is a legitimate reason for the existence of these committees. If there is a good reason for their existence there is an equally good reason for maxi-

mum efficiency without loss of the attributes of the profession.

In the past, so far as I have been able to learn, active defense of mal-practice suits has been the only function of these committees. I admit the necessity of efficient defense, but here, as elsewhere, an ounce of prevention is better than a pound of cure.

The causation of suits for mal-practice may be placed in one or more of the following classes:

1.—Malicious; either personal or professional, for personal, professional or financial gain.

2.—Circumstantial; wherein a combination of circumstances, misunderstanding or perversity of physical laws or the laws of health are contributing factors.

3.—Comparative; wherein both the physician and the patient contribute through carelessness, ignorance, indifference, misunderstanding or physical imbalance.

4.—Judgment; wherein the elements of the case are materially the result of the judgment used by the physician, who is not infallible.

5.—Inexcusable; where, because of incompetence, negligence, indifference or unwarranted treatment, disaster results.

The laws of all states governing mal-practice provide reasonable protection, and the courts have never required the impossible nor more care and attention than is the custom in the locality in which the physician practices.

Sometimes it is difficult to determine the prevailing custom. This lack of definiteness, when it exists, is an open invitation to mal-practice suits and a most serious condition in the face of legal difficulties.

This, I think, presents our present status and my own theory of the proprieties incident thereto.

PREVENTING MAL-PRACTICE SUITS.

I now invite your consideration of the feasibility of methods calculated, not to defeat actions instituted, but to *discourage* and *prevent* their institution.

1.—The unit of value is the doctor. Physicians, individually and collectively, should have a working knowledge of the legal phases and acts that are free from liability; acts that are liabilities; and those that are borderline liabilities.

2.—*Written records* of clinical history, physical and laboratory examination, treatment and charges should be the in-

flexible rule. This does not require a voluminous document. Precise, accurate notes take but little time and space and are extremely valuable. The practice develops accuracy and concentration, prevents neglect and omissions, acts as a barometer in the treatment, has an excellent psychologic effect, and is a *sheet anchor in mal-practice suits*.

3.—Consultations are a protection. They distribute responsibility, prevent mistakes and omissions, develop *esprit de corps* and prevent mal-practice suits.

4.—A reasonable, standardized obstetrical and surgical technique; treatment of fractures; use of electrical apparatus; intravenous and new and unofficial drugs; new and unofficial diagnostic reagents and the therapy of infectious diseases should be adopted in each locality. I appreciate that this will, to a limited degree, interfere with personal initiative; however, it will at the same time safeguard the public and the profession, which is more important.

A physician who is unwilling to accept guidance or conform to established conventions has no moral right to expect or receive collective assistance, and I doubt that the medical profession has the right to risk its reputation or spend money to defend such an individual.

5.—The medical profession has been unable to escape the problem of economics. Disproportionate and nonuniform fees for apparently the same relative value of work and excessive fees for incompetent work cause, in many instances, dissatisfaction and are frequently the primary cause of mal-practice suits.

6.—Demoralizing credit extension has become a serious problem. The practice of charging the rich an excessive fee on the pretext of being able thereby to render service to the poor is not charity and is too often the source of legal difficulties. It is a hybrid form of business. The terms rich and poor are relative and often vague. In actual practice the custom resolves itself into charging the individual who is thrifty and pays his obligations promptly an excess fee, in order to be able to render service for those who will pay the butcher, garage, gas station and movie theatre, but who never acquire the moral or financial integrity to include the doctor. On the other hand, deserving charity should never be eliminated from the profession and can always be given without material loss.

There are many details in the prevention of mal-practice

that could with profit be added to a prevention programme. I have endeavoured to show in a general way that this phase of medical practice is deserving of more study and attention than has been accorded it in the past. If I succeed in irritating a sufficient number of physicians to stir up a prevention programme, I will have, in Army parlance, "accomplished my mission."

Clemenceau's Philosophy of Life



GEORGES CLEMENCEAU, the "Tiger" of France, recently confided to a life-long friend his philosophy of life, which in a word was work, self-expression and love.

"The chief factor in the acquisition and retention of health and happiness is work, I am sure," he said. "I have never loved anything so well as the joy of action, *the putting right of creation*, I call it, *the redeeming of the evil begotten by the Creator by the good begotten by the creature*. I am contented at the end of a day in proportion to the amount of action put into it and my health seems to keep pace automatically with my action and my contentment.

"To be one's self, is at once the worst and best thing in life, according to whether one wants to be a fool and have happiness based on ignorance, or an intellectual and have unrest based on understanding. How few people are their own selves. How few of their thoughts are really theirs. They heard them at tea yesterday, the theatre the day before, or read them in a book where the author did their thinking for them. Their views are somebody else's and all that fills their heads is borrowed plunder. They are afraid to give their individualities a chance to grow, for they know it's the road to Calvary. Every great personage was himself to the last syllable. The first requisite to greatness is to be one's self. Enemies are the interest one draws on greatness, and every time a man does a great act he makes an enemy. Popularity is the privilege of mediocrities.

"Love in order to understand everything: hatred is ignorance: knowledge is love."

Periodontia*

C. ALVIN SNELL, D.D.S., TORONTO.



THE presentation and discussion of this subject had as its purpose the giving of an intelligent answer to the following important question:

Should periodontoclasia develop in the mouths of patients who are under periodic dental care?

The term periodontoclasia (peri—around, odous—a tooth, klasia—a breaking down) is used, as it is the one officially adopted by The American Academy of Periodontology to supplant the unfortunate and inadequate term Pyorrhœa alveolaris, which means literally a flow of pus from the alveolus. It is a lamentable fact that periodontal disease is so developing, and it is felt that with a fuller conception of the nature of such disease processes, with ability to diagnose the different types, a keener understanding of the etiological factors involved, and the development of the skill necessary to cope with these factors, that the periodontal tissues could and should be maintained in a state of health.

It is recognized at the outset that a very small percentage of cases present themselves in which either the amount of destruction of the periodontal tissues, or the intensity of the suppurative process, or both, are out of all proportion to the local factors involved. Conversely, it is also recognized that other patients have in their mouths adverse conditions of a local character, and yet periodontal disease does not develop. With this decidedly small percentage we are not concerned at present. In time more light may be thrown on such cases. It is sufficient for the moment to state that failure on the part of the dental profession to fulfil its obligations in the matter of preventing periodontal disease should not seek to find excuse in the old bogey of constitutional disease. A large and ever-growing body of men is daily proving that not only can periodontoclasia be prevented in the vast majority of patients, but that also “pockets” can be obliterated, in cases presenting a favourable prognosis, by bringing about reattachment of the soft tissue to the surface of the root.

In seeking, however, to give a negative answer to our

*Resumé of a clinic given to members of The Academy of Dentistry, Toronto, Dec. 12th, 1927.

opening question, we need not discuss on this occasion the method of treatment of an advanced case of periodontoclasia. We are thinking rather of mouths as yet entirely free from periodontal disease, or having it only in its early stages. And it is fairly obvious that the greatest field of the general practitioner lies in dealing with such cases. What, then, are the signs of early disease for which we should look? And what steps should we take to at first obtain, and then subsequently maintain, a healthy periodontium?

In order to intelligently answer these questions it is essential that we have, as previously stated, a fuller conception of the nature of periodontal diseases. A house is no stronger than its foundations, and we must think more of the supporting structures of the teeth, which are collectively known as the periodontium. Its essential tissue components are as below indicated:

Periodontium	{	Gingivae	{	Marginal
				Cemental
		Pericemental Membrane		
		Alveolar Process		

It is important that we are able to diagnose the different types of periodontal disease, and fully comprehend the etiological factors involved.

Periodontal diseases may be classified as follows:

Gingivitis—this may be defined as the reactive phenomenon of gingival tissues to any injury done to them. It may be divided into two main types, namely—

A. Acute Infection, called by a variety of names, such as Trench Mouth, Fusospirillary Gingivitis, Acute Ulcerous Gingivitis, Phagadenic Gingivitis, Ulcero-membranous Gingivitis, etc.

B. Marginal Gingivitis.

The former differs from all other forms of periodontal disease both in its etiology and method of treatment, and will be omitted from our present discussion.

The latter is the beginning of the infective factor, which, if unchecked, later involves the deeper seated structures, and hence demands our serious consideration. In Marginal Gingivitis the Cemental Gingivae are usually also involved. Its etiology may be looked for in bacterial invasion and all other forms of gingival irritation, which may or may not have as an accompanying factor a traumatizing occlusion.

The term Traumatizing Occlusion is here submitted as being a better term than Traumatic Occlusion.

A Traumatic Occlusion is the *result* of an injury. A fracture of the mandible would result in a Traumatic Occlusion.

A Traumatizing Occlusion is one which is producing injury to the periodontal tissues.

There is a prevailing impression in the dental profession that considerable diversity of opinion exists concerning the etiology of periodontoclasia. Misconception in this regard has naturally arisen from the fact that our dental periodicals have contained frequent articles in which the writer has stressed the importance of one particular factor concerning which he felt teaching was required. These writers do, however, take into consideration in their treatment of periodontal lesions the various factors which are recognized as constituting the true picture in which there is always a combination of factors. The American Academy of Periodontology may be regarded as a clearing house of ideas on all aspects of Periodontia, and it may here be confidently stated that there exists amongst the members of this organization a unanimity of opinion concerning the complex nature of the etiology of periodontal disease.

Some confusion regarding etiology has existed in the past, and undoubtedly still persists amongst the dental profession, because of failure to recognize the different types of periodontoclasia. Such confusion should disappear upon consideration of the following classification: The terms Periodontitis Simplex and Periodontitis Complex used in the teaching of the Faculty of Dentistry, University of Toronto, convey to the mind, upon due consideration, a clear picture of the pathological processes with which we are dealing. They are here used, and in conjunction with them are given some of the other terms by means of which some observers have endeavoured to present their understanding of the subject. It will be noted that the etiology differs according to type. In the Simplex type the bacterial factor is the predominating one. While in the Complex type a Traumatizing Occlusion has first produced degenerative changes in the pericemental membrane, and rarefaction of the alveolar process, upon which is later superimposed the infective factor commencing at the Gingival Margin. It is true that a measure of improvement could be accomplished in the Complex type even without correcting the occlusion, but

the undue leverage on the tooth would always remain as a depressing factor and prevent as successful results as could otherwise be effected. It is these degenerative changes in the pericementum and alveolar process which has been called by Box Rarefying Pericementitis Fibrosa.

Periodontitis Simplex.	Characterized by
False Pyorrhœa. Horizontal Pyorrhœa. Germ Carbohydrate Type.	Little or no divergence from normal mobility. Shallow pocket formation. Slow pro- gression. Marked gingivitis— being clinically obvious.
Periodontitis Complex.	Characterized by
True Pyorrhœa. Vertical Pyorrhœa. Atrophic Type.	Divergence from normal mo- bility at first slight, later pro- nounced. Formation of deep and narrow pockets. Relatively rapid development of such pockets. Gingival tissues may appear normal—the pathologi- cal condition not being clinically obvious.
Periodontitis Simplex.	Periodontitis Complex.
Dominating factor—Gingival irritation of all kinds. Trau- matizing Occlusion may or may not be present—and if present it is not the important factor.	Dominating factor—Trauma- tizing Occlusion. Gingival irri- tation and bacterial invasion associated with this leads to deep and narrow pockets.

No attempt is here being made to elaborate the local factors. The bare essentials only are given in order to present a clear conception of the different types of periodontoclasia. Treatment is naturally based upon elimination of the etiological factors in the order of their importance, depending upon the type. The proper sequence is quite obvious, when the operator possesses the conception here given. In addition to eradicating these local factors it will be found advisable, in many cases of gingivitis particularly, to see that intestinal toxemia is properly dealt with. With such a conception of our subject as we now possess we are ready to answer our former questions, namely—What are the signs of early disease for which we should look? And what steps should we take to at first obtain, and then maintain, a healthy periodontium?

It cannot be stated too emphatically that we should be constantly on the watch for the first indications of periodontal disease. The things that we should look for are not difficult to find if we are sufficiently alert. They are as follows:

1. Any change in colour or contour of the gingival tissues.

2. Mobility, which can be detected by sighting, or placing the finger on the buccal or labial surfaces of the suspected teeth during the various excursive movements of the mandible.

3. Any exudation from beneath the gingivae which may be detected by means of digital pressure.

4. Rarefaction of the alveolar process which may be revealed by means of radiogramms.

5. Increased depth of the gingival crevice revealed by probes.

Treatment both curative and preventive will naturally be directed towards the eradication of the etiological factors responsible. Our efforts will therefore be concerned with:

1. Correction of the occlusion where indicated, so that the stress is rightly directed, and is no greater than can be tolerated by the periodontal tissues.

2. Removal of all sources of gingival irritation. This calls for the development of a delicate sense of touch, which will enable the operator to detect all roughness beneath the gingival margin.

3. Teaching the patient to thoroughly massage the gingival tissues, and at the same time remove bacteria from the necks of the teeth, by means of the tooth brush. The use of a normal saline solution is advisable. Such co-operation on the part of the patient can only be secured when the operator is himself fully convinced of its very great importance, and is also a good teacher.

4. Prophylactic treatments at such intervals as the case demands. On such occasions attention should be particularly directed to the removal of deposits from beneath the gingival margin, and any further correction of the occlusion that may be indicated. Gottlieb has shown that the process of eruption while slight, is continuous, and varies in different mouths, and in different teeth in the same mouth.

5. Correction of dietetic errors where indicated, and clearing up of any intestinal toxemia.

Mature consideration of the subject of the prevention of periodontoclasia would indicate the need of professional qualities of the highest order. The prevention of disease is not apt to be as spectacular as its cure. And yet it is difficult to think of any finer reward for our professional skill than the satisfaction of maintaining in the mouths of our patients a healthy periodontium.

Hemorrhages in Oral Surgical Operations*

WITH SIMPLE TESTS FOR BLEEDING AND COAGULATING TIME.

BY JAMES L. ZEMSKY, D.D.S., NEW YORK, N.Y.

INTRODUCTION.



THIS article does not intend to deal with methods employed to control more or less profuse bleeding following surgical procedures, but aims to present a short discussion of certain pathologic and abnormal conditions of patients who, when subjected to *any* surgical operation, develop an uncontrollable hemorrhage, which not infrequently proves fatal to the patient and terribly embarrassing to the operator.

In a desire to prevent such unfortunate experiences to the dental practitioner who is not familiar with such conditions, the writer shall attempt to briefly describe blood diseases which make it prohibitive to subject patients suffering from them, to an operative procedure on account of the following *uncontrollable hemorrhage*.

To make this presentation practical, several methods for determining coagulation and bleeding time are herein included. The tests described are quite simple procedures giving very satisfactory results; their routine application in the daily practice may avert great anxieties and serious embarrassment.

GENERAL CONSIDERATION OF TYPES OF HEMORRHAGES.

Hemorrhage is a copious escape of blood from the vessels. It may be the result of a separation of a large blood vessel, or it may be the result of a continuous exudation from numerous small blood vessels or the result of capillary oozing.³ Depending upon whether the blood escapes from an artery or a vein the hemorrhage is termed *arterial* or *venous*, respectively. Oozing from minute vessels is called *capillary* hemorrhage. The term *primary hemorrhage* is used in connection with bleeding which

*Published by courtesy of the International Journal of Orthodontia.

occurs as an immediate result of an operation or injury. *Secondary hemorrhage* is that which follows an accident, injury or operation after a considerable lapse of time; this must be differentiated from *recurring hemorrhage* which refers to bleeding that has been once stopped by clots, but returns after the periods of reaction, the clots being displaced by blood current.⁵ The classifications of hemorrhages into *external* and *internal* is based upon the destination of the escaping blood—either upon the exterior of the body or into closed cavities.

The study of nature's mechanism of controlling hemorrhages reveals the following: A primary hemorrhage either arterial or capillary, is arrested by plugging the blood vessel by a clot. Those hemorrhages which are due to clots displaced by the blood current are checked through a lowered blood pressure, brought about by the reduction of the total amount of blood lost during the prolonged bleeding. In interstitial hemorrhages the extravasated blood exerts pressure upon the capillaries, and the hemorrhage is arrested in that way.

In certain cases, the blood vessels contract at the site of hemorrhage; the middle coat retracts, curls up, and thus the flow of blood from it is stopped.⁶

The analysis of the above points clearly show that when hemorrhage is not arrested by nature, the blood or blood-forming organs are responsible for the hemorrhage; therefore the next subject of discussion should logically be the blood and blood-forming tissues.

BLOOD AND BLOOD-FORMING ORGANS.

Blood is considered to be a tissue consisting of serum and plasma, the latter containing fibrin, white and red corpuscles and platelets; the normal relationship of these various components insuring a perfect function. As a tissue blood is affected by disease even as any other portion of the body, resulting in a derangement of its various constituents which finally manifests itself in an impaired function. Since the blood is a product of the blood-making organs, any disease which affects them will consequently affect the constituents of the blood also. A great many of the diseases of the blood and blood-forming tissues may be recognized and diagnosed by a microscopic examination of the blood itself; a large number of diseases cannot be recognized by a mere blood examination. The hemopoietic, or blood-making, organs are the bone marrow, lymph glands, and the spleen; and to determine a diseased

condition of any of these organs, it may be necessary to obtain specimens for microscopic examination. Under local anaesthesia specimens of bone marrow and of a lymph gland could be secured; exploratory punctures of swollen lymph glands could also be easily made. This, together with a careful examination of the spleen, supplemented by x-ray findings, will usually lead to a definite diagnosis. In this connection the following should be remembered: A general enlargement of glands may be caused by syphilis, leucemia, or tuberculosis—while local enlargement may be due to various local infections such as arthritis, tuberculosis, lues, mollities, bubonic plague, and Hodgkin's disease. Malignant growths must also be kept in mind. Such examinations, however, usually are not within the scope of the work of the dental practitioners, therefore such patients should be referred to medical men who are to be advised that the doctor refers the case for diagnosis in order to be guided by it in handling of the patient.

DISEASES OF THE BLOOD.

In a consideration of blood diseases in connection with the discussion of hemorrhage in relation to oral surgical operations the following will be presented: (A) Anemias. (B) Purpura. (C) Leucemia. (D) Hemophilia.

(A) *Anaemias*.—General anaemias caused by loss of blood through surgical separation of large blood vessels shall be omitted as having no direct bearing on the subject, and only true anaemias shall be considered. The term *anaemia* as it is used in the present day, describes a condition in which the amount of hemoglobin to the unit of blood volume is diminished.⁸ Since the etiology of the several forms of anaemia is either poorly understood or not understood at all, its classification is merely clinical “an attempt being made to fit all cases of anaemia into one or other or two main groups, labelled *primary* and *secondary* anaemias respectively”⁶ depending upon whether the condition is due to disease of the blood itself or is due to disease of some organ resulting in an alteration of the blood. Each of these main groups comprises several varieties, the definition of which, however, is seldom important in practice. The important thing is first of all to determine whether a patient is suffering from a real anaemia; this can be ascertained definitely by a blood examination. If the report shows a diminution in the percentage of hemoglobin, it indicates that

the patient is suffering from a real anaemia and an attempt to determine what is its real nature is the next step.⁶ It will be found very helpful to divide all cases of anaemia into: (a) Anaemia with a positive blood picture, and (b) anaemia with an indeterminate or negative blood picture.

In anaemias with a positive blood picture a diagnosis is indicated directly by the results of blood examination and may be pernicious anaemia, splenomedullary leucemia, lymphatic leucemia, mixed variety of leucemia, parasitic anaemia associated with parasites in the blood. *A patient suffering from any of the above anemias cannot undergo surgical operation unprepared*, hence these types of cases should be referred first for medical attention. Such a procedure will prove of great benefit to the patient as well as to the dental practitioner.

All these patients whose blood picture is negative certainly cannot be submitted for surgical work before a definite diagnosis is arrived at, and therefore they should be instructed to present themselves to their physician: *the surgical work having been postponed until a favourable report regarding the advisability of a surgical interference will be available.*

(B) *Purpura*.—Purpura is a hemorrhagic disease which has been observed to occur at any age affecting women more often than men. It is characterized by hemorrhages from the mucous membrane, bleeding of the gums, hemorrhage of the skin and subcutaneous tissues presenting sometimes purpuric spots. There are many forms presenting various symptoms and running a different course, sometimes rapid and quickly fatal.

Purpura hemorrhage is the most severe form of purpura, it is characterized by severe subcutaneous hemorrhages and often bleeding into serous cavities.⁷ *Simple purpura* is characterized by slight subcutaneous bleeding with a feeling of uneasiness and digestive disturbances such as diarrhoea, etc.

The simple purpura on the one hand and purpura hemorrhagic, on the other hand, represent the extreme varieties of purpura between which there are many gradations.

Under normal circumstances a hemorrhage from a wound is checked by formation of platelet thrombi in the injured capillaries. Owing to the fact that the number of platelets is strikingly reduced in purpura blood, these thrombi do not form with normal speed and the bleeding time is therefore prolonged.⁸

Since a blood picture of purpuric blood offers a definite information regarding the condition of the patient, a blood

examination in these cases is absolutely essential. *A patient suffering from purpura may be promptly benefited by injection of either fresh human or normal rabbit serum.*

The methods of such injections as well as the methods of ascertaining bleeding time and coagulation time shall be described at the end of the discussion of the other two important blood diseases—leucemia and hemophilia.

(C) *Leucemia*.—Leucemia is a fatal disease characterized by a pathologic productivity of tissues, widespread throughout the body—in the one group of cases, the lymphadenoid tissue all over the body, and in the other group of cases, the myeloid tissue of the marrow of the various bones of the skeleton.¹ Symptomatically it is characterized by paleness of the mucous membrane and of the skin, by palpitation of the heart and at times by anasarca.⁷ Superficial lymph glands are usually enlarged but not necessarily; sometimes the enlargement of the spleen may also be observed. The etiology of leucemia is entirely unknown. The mass of accumulated evidence, however, points strongly to infection as its causative factor. Although streptococci have been more frequently reported than any other organisms in the blood and tissues of leucemia patients, it is probable that any other organisms in the blood and tissues of leucemia patients, it is probable that other organisms of various kinds and of low virulence are responsible for bringing it on. It is very likely that the soil has been prepared for these organisms by previous infections and the bacteria having thus secured a foothold in the bone marrow, spleen and the lymphatic glands brings about the leucemia reaction alone or combined with disturbance of the red blood cell-forming mechanism.¹⁰

An attempt to classify rigidly the leucemias and pseudo-leucemias on purely morphologic grounds is, according to Wilbur, absolutely futile; for didactic reasons, however, a division into chronic and acute lymphatic and myeloid leucemias is recognized as highly important.¹

A diagnosis of leucemia in the majority of instances can be made by a differential count of the white blood cells alone; not infrequently, however, the blood picture will have to be supplemented by a very careful clinical examination, and when this seems to be indicated, it should be done without any hesitancy. To assume the responsibility in such cases for the dental practitioner, to say the least, is unwise.

(D) *Hemophilia*.—Hemophilia is a classical hemorrhagic disease affecting the male members of certain families, being transmitted most commonly through the females. While most of the undoubted cases reported exhibit this history it cannot be denied at this time that cases may arise spontaneously, and according to Howell⁹ to exclude such cases from the group of hemophilias because there is no evidence of a similar condition in the family history is not justifiable. The pathology of the disease is not well understood and while a large number of explanations have been offered, none is entirely satisfactory.

A picture of hemophilic blood does not vary in any essential particular from normal blood, hence a microscopic examination of a blood specimen will not disclose the condition. *The test which will disclose hemophilic blood is the test for coagulation.* It has been found that the coagulation time of the blood in hemophiliacs is markedly delayed. Some investigators have determined that hemophilic blood would not clot in less than four hours, while normal blood clots in about 20 to 40 minutes. According to investigation the delayed coagulation time is due to the diminution in the amount of the prothrombin which results in a relative excess of antithrombin, which constitutes the peculiarity of hemophilic blood; this, however, is not certain. *It had been proved that the delayed coagulation demonstrable outside the body stands in a direct relationship to the tendency to bleed.*

With the exception of a few cases in which hemophilia arises spontaneously a diagnosis of this condition is easy. History will indicate that the patient had a tendency to profusely bleed since his early days of existence; all ordinary means to arrest the hemorrhages which follow relatively slight injuries such as needle prick, a blow upon the nose, failed, the bleeding being persistent and recurrent.

It has been observed that as "bleeders" approach puberty the hemorrhagic tendency decreases and some bleeders reach a ripe old age. Physical appearance of the members of bleeding families suggest that they are of feeble constitution; they are thin and pale with a delicate white skin and a gracefully slender frame.

When a patient is known to come from a family of hemophiliacs even the most simple surgical interference must be avoided, for the reason that all surgical operations upon such individuals are dangerous and even fatal.

METHOD OF DETERMINING BLEEDING TIME.

To determine whether the patient who requires an operation is not suffering from hemorrhagic diathesis or some other disturbance that interferes with normal coagulation, a blood test to ascertain the bleeding time and coagulation time should be made—of the two tests the one determining the bleeding time is the more important. Duke had described a simple method which should be performed as follows:

The lobe of the ear is pierced and the following hemorrhage is checked up by applying blotting paper to the punctured ear at half-minute intervals. In normal individuals the hemorrhage from such a wound will be checked in about two minutes and it is caused by the formation of platelet thrombi in the injured capillaries. Patients whose blood is deficient in the number of blood platelets will show a hemorrhagic tendency which will be demonstrated by the comparison of the size of the blood stains on the absorbent paper, obtained by the above described Duke test.⁴

Each succeeding stain on the blotting paper which is obtained from either a large or small cut in the lobe of the ear of a normal person is decreased in size, this represents the rate of decrease in the intensity of the hemorrhage. The blood stains on the absorbent papers used to test the bleeding time of a patient with prolonged bleeding differ markedly from those of an individual with a normal blood; it shall be observed that the twentieth stain in these cases may be found practically as large as the first—indicating that the amount of blood escaping from the wound at the end of ten minutes was equal to that when the cut was just made, i.e., the bleeding is prolonged. *Having ascertained that the patient's blood shows prolonged bleeding, the procedure must be planned in accordance with the condition which would mean, saline or blood transfusion, injection of serum or refusal to operate altogether.*

METHOD OF DETERMINING COAGULATION TIME.

There are several simple methods which may be effectively employed in testing the blood for coagulation time. One method suggested by Duke⁴ requires a simple apparatus; this consists of two 5 mil. discs mounted upon a microscopic slide. To perform the test a drop of the patient's blood is placed over one of the discs and as a control for the test a drop of *normal* blood is placed over the other disc. An attempt should

be made to have the two drops of the same depth. In order to determine the coagulation time the slide should be inverted over a glass filled with water kept at 40° C. and covered with a damp warm cloth. By holding the slide in a vertical position over the glass it will be noticed that "when the end-point is reached the drop does not hang but retains its contour of a perfect sphere,"—coagulation time for normal blood, when this method is used will vary from five to seven minutes. A delay of ten minutes can be easily determined by this procedure. Another simple and practical method to ascertain the clotting time consists in the following procedure. A drop of normal blood obtained by either cutting the end of a finger or lobe of an ear is placed on a microscopic glass slide. Alongside of it is placed a drop of the blood to be tested. It is important that the blood should flow from the wound without squeezing the surrounding tissue, because this markedly diminishes the clotting time. At half a minute intervals a point of a clean needle is inserted into the blood at the edge of the drop and then withdrawn. This should be repeated "until a distinct string of fibrin can be made to adhere to the needle which occurs just a little before the true clot is formed."²

SUMMARY AND CONCLUSION.

It should be borne in mind that while cases of profuse hemorrhage in normal individuals may not infrequently cause considerable discomfort and uneasiness, patients who are suffering from diseases of the blood, subjected to surgical operations most frequently will prove to be cases of fatal bleeding.

The dental practitioners should therefore most carefully consider every patient whom he submits for surgical work. A history to ascertain whether the patient and any other members of his family had shown bleeding tendencies should be taken. Patients with a feeble constitution who are to undergo any operation should have a test for bleeding and coagulation time performed and a blood examination made. Any case of hemorrhage for which the operator cannot see a good reason should be most seriously investigated.

REFERENCES.

- ¹Barker, L. F.: *Diagnosis of Diseases of the Blood*, Monographic Medicine, iii, New York and London, 1920, D. Appleton Co.
²Blair, V. P.: *Surgery and Diseases of the Mouth and Jaws*, St. Louis, 1918, C. V. Mosby Co.

- ²Dorland: The American Illustrated Medical Dictionary, Philadelphia and London, 1925, W. B. Saunders Co.
- ⁴Duke, W. W.: The Relation of Blood Platelets of Hemorrhagic Diseases, Description of a Method for Determining the Bleeding and Coagulation Time, Jour. Am. Med. Assn., Oct. 1, 1910, xlv, No. 14, pp. 1185-1192.
- ⁵Endelman and Wagner: General and Dental Pathology, St. Louis, 1920, C. V. Mosby Co.
- ⁶French, H.: Anaemia, in Index of Differential Diagnosis, New York, 1923, William Wood and Co., p. 20.
- ⁷Fussell, M. H.: Diseases of the Blood, Monographic Medicine, New York and London, 1920, D. Appleton Co., v. p. 474.
- ⁸Hewlett, A. W.: The Blood in Functional Pathology of Internal Diseases, Monographic Medicine, New York and London, 1920, D. Appleton Co., i, p. 557.
- ⁹Howell, W. H.: The Condition of the Blood in Hemophilia, Thrombosis, and Purpura, Arch. Int. Med., 1914, xiii, 76.
- Diseases, Monographic Medicine, New York and London, 1920, D. Appleton Co., i, p. 557.
- ¹⁰Wilbur, R. L.: Leucemia—an Infection, with report of cases, Jour. Am. Med. Assn., October, 1915.

Selection of Anaesthesia for Dental Surgery*

STERLING V. MEAD, D.D.S., WASHINGTON, D.C.



THE ideal anaesthetic may be described as one having the following advantages:

1. Elimination of pain.
2. No discomfort to the patient.
3. No ill effects.
4. Minimizes postoperative pain and bleeding.
5. Does not interfere with the healing process.
6. Eliminates all psychic effects of an operation.
7. Does not place the operator at any disadvantage.
8. No danger to the patient.

The correct choice of the anaesthetic is an extremely important step toward success in an operation in the field of oral surgery or exodontia. There is no anaesthetic best for all cases, but there generally is an anaesthetic best for each operation. Patients have the right to expect any one operating in this field of work to be fully qualified in the use of all types of anaesthesia. Let the findings of the physical and clinical examinations dictate the proper anaesthetic to be used.

I consider that nitrous oxide oxygen more nearly approaches the ideal anaesthetic for exodontia and dental minor oral surgery than any other single agent. I find that it is more satisfactory than local anaesthesia in many cases, but it should

*Read before the West Virginia Dental Society, May, 1927, and published by courtesy of the International Journal of Orthodontia.

be used with discretion and local anaesthesia or conduction anaesthesia used when indicated. While ethylene oxygen produces a state of sleep more nearly that of normal than does any other general anaesthetic, it is not sufficiently safe to be used in dental practice considering the danger of explosion.

ADVANTAGES OF NITROUS OXIDE OXYGEN OVER LOCAL ANAESTHESIA.

1. Complete oblivion to pain, especially in children and neurasthenics.
2. No discomfort to patient.
3. Free bleeding and proper blood clot in wound.
4. Perfect healing.
5. Short period of healing.
6. Comparatively little after-pain.
7. Very few cases of postoperative hemorrhage.
8. Short period of time required.

DISADVANTAGES OF NITROUS OXIDE OXYGEN OVER LOCAL ANAESTHESIA.

1. Requires more skill on the part of the operator to perform any operation.
2. The responsibility of the operator is greater.
3. Not all patients are suitable nitrous oxide oxygen subjects.
4. Occasional nausea and depression following general anaesthesia.

CONTRAINDICATIONS FOR NITROUS OXIDE OXYGEN.

1. Circulatory conditions such as marked heart impairment, low blood pressure, low hemoglobin content, extreme toxic heart condition, etc.
2. Pronounced asthma.
3. Nasal obstruction in prolonged cases.
4. Alcoholics and drug addicts.
5. Exophthalmic goiter.
6. Tuberculosis.

DANGERS UNDER NITROUS OXIDE OXYGEN.

Nitrous oxide oxygen anaesthesia is very flexible and the changes occur so rapidly that one should have special technical training, and should have a thorough knowledge of the heart and general circulatory system to give it well and safely.

I have found it the common practice among dental surgeons to give nitrous oxide oxygen without any preliminary physical examination. There are cases in which nitrous oxide is contra-indicated and it is, therefore, advisable to examine the patient carefully in every instance and in detail. The stethoscope and sphygmomanometer should be used in every case and a record made. Dentists have a great responsibility, as operations performed by them are considered minor, and when accidents occur the consequences may become quite serious.

EFFECTS OF NITROUS OXIDE AND OXYGEN.

This anaesthetic is not unpleasant when given properly to favourable subjects. Some conditions are unfavourable for its use and in these cases local anaesthesia, ethylene, ether, or synergistic methods should be used. Nitrous oxide oxygen does not produce appreciable blood pressure changes and is eliminated within ten minutes.

When given properly, the percentage of after nausea and sickness is very slight. While it is frequently necessary to give prolonged anaesthesia, the length of time of operation is the most important factor in the control of nausea. The shorter the operating time the less the danger to the patient and the better the patient feels on recovery. Prolonged anaesthesia increases the chance of nausea and trouble. The operator, therefore, should be skilful and should be able to work fast and carefully. It is important that the mouth be kept free from all blood and saliva, and the patient should have an empty stomach.

INDICATIONS FOR USE OF NITROUS OXIDE OXYGEN.

1. Lancing infected area and establishment of drainage in acute cases.
2. Removal of all teeth that can be accomplished without injury to patient, and especially those uncomplicated.
3. Removal of teeth where the use of a local anaesthetic could be contraindicated on account of the condition of the surrounding tissue.
4. Removal of teeth with acute symptoms where local anaesthesia would not give complete relief from pain.
5. When it is necessary to extract in the presence of trismus and where it is necessary to gain entrance into the mouth.
6. Children usually too apprehensive under local.
7. For patients who have been suffering intense pain caused by some pathologic condition.
8. For the patient who has a strong personal objection or dislike to remaining conscious during operation.
9. For anemic individuals or persons having lowered vitality.

It is seldom necessary to use premedication in the use of N_2O-O_2 in dental practice, as most operations are of short duration.

Extremely nervous individuals can be relaxed by hypodermic injections of $1/6$ to $1/4$ grains of morphine and $1/150$ atropin forty minutes before operation. Any or the following drugs may be administered: Allonal, veronal, chlorotone, or bromural.

ADVANTAGES OF PROCAINE OR LOCAL ANAESTHESIA.

1. In cases where the administration of a general anaesthetic is usually difficult, as for prolonged operations upon the jaws or face.
2. When it is necessary to have a bloodless field.

3. For patients who possess a strong personal objection to the loss of consciousness.
4. The length of local anaesthesia permits the operator to take his time with the operation, which gives him the opportunity to utilize all of his skill while operating.
5. The co-operation of the patient is retained.

DISADVANTAGES OF LOCAL OR CONDUCTION ANAESTHESIA

1. It does not produce loss of sensation in all cases.
2. Children are usually too apprehensive under it.
3. It is not advisable for highly neurotic or nervous individuals; or
4. For patients who have been suffering intense pain caused by some pathologic condition; or
5. For a patient who has a strong personal objection or dislike to remaining conscious during operation; or
6. For anaemic individuals or persons having lowered vitality.
7. Occasionally the psychic effects produced upon the patient are undesirable.
8. Exacerbations from operations are more pronounced than with general anaesthesia.

CONTRAINDICATIONS FOR PROCAINE OR LOCAL ANÆSTHESIA.

1. Extreme anaemia.
2. For any operation on any part, the nerve supply of which cannot be blocked off without introducing needle or injection solution into inflamed or infected tissue; or
3. In tissue of low vitality.
4. Severe heart abnormalities.
5. For a patient who has suffered considerably with some severe pathologic condition and may be in a state of general infection, for a prolonged or difficult operation.
6. It should not be used when a large amount of solution is necessary, especially if the patient's physical condition is not good.
7. For operations when there is trismus or locking of the jaw.

DANGERS OF LOCAL AND CONDUCTION ANÆSTHESIA.

1. Intoxication from the drug injected.
2. Disturbances due to suprarenalin or adrenalin.
3. Syncope.
4. Collapse.
5. Forcing of toxins and bacteria into the circulation.
6. Ulceration of tissues.
7. Necrosis of tissues.
8. Postoperative pain from lack of blood clot.
9. Partial or complete paralysis of areas obtunded.
10. Prolonged anaesthesia.
11. Postoperative hemorrhage.
12. Trismus.
13. Broken needles.
14. Infection due to dry socket.

EFFECTS OF PROCAINE OR LOCAL ANÆSTHESIA.

The injection is the most objectionable part of local anaesthesia, as the insertion of the needle produces injury to the tissue. The pain of injection can be lessened by medication, and by using care.

Procaine is toxic, but less so than cocaine. Procaine is less toxic when used without adrenalin or suprarenalin. It has a

depressing effect upon the system for a short period. It is not uncommon for patients to feel faint; to have pain in the lumbar region of the back; to become nervous; to become numb in the extremities or over the entire body.

Procaine or other local anaesthetics irritate tissues, and retard clotting of blood. The blood from a wound where procaine is used often appears thin and watery and does not clot readily.

ALCOHOLIC AND ROBUST INDIVIDUALS.

For alcoholics and robust individuals a great quantity of nitrous oxide oxygen under pressure is required and unless the time for operation is extremely short, I prefer the use of local anæsthesia. If more time is required in these cases, it is advisable to use local anæsthesia rather than push the patient to the point of asphyxiation or slight the operation by too much speed. I have used the ether sequence in these cases with gratifying results; but this is not often suitable for the average dental office. Ether also increases the immediate and postoperative dangers to the patients, besides requiring more time; and patients also remain longer in the office.

DRUG ADDICTS.

Most drug addicts (cocaine, morphine, heroine, etc.) insist upon nitrous oxide and oxygen anæsthesia, and in these cases it is absolutely contraindicated; local anæsthesia should be used. If they insist upon general anæsthesia, take them to a hospital and use ethylene or nitrous oxide and ether. These patients usually resist the anæsthetic and struggle violently.

The inveterate cigarette smokers are also in this class of patients, as they resist, struggle, mouth breathe, and it is almost impossible to keep them quiet long enough to do even a simple removal of a tooth. Use local anæsthesia in these cases. When general anæsthesia is used in the office, it is necessary to use premedication and use straps. Premedication of 1-6 of a grain of morphine with 1-150 of atrophine forty minutes before operation is best.

PREGNANCY.

During pregnancy it is very important that the patient have no pain or shock during the operation, and I recommend nitrous oxide and oxygen in practically all cases regardless of the period of pregnancy. There is practically no shock and the recovery is generally uneventful and rapid and the tissues

heal much better and quicker. Extreme care should be taken that the patient does not become cyanotic and that there is plenty of oxygen in the mixture. There is no difference in this patient and the nursing mother, and nitrous oxide and oxygen does not affect the baby. In all cases of pregnancy I make it a rule to consult the physician in charge of the case, and obtain his consent to the use of nitrous oxide and oxygen, as many physicians object and want local anæsthesia. I will not knowingly take the responsibility of administering a general anæsthetic against the wishes of the physician.

RESPIRATORY SYSTEM.

Pronounced asthma, growths in the throat, nasal abnormalities, influenza, colds, etc., in many instances contraindicate the use of nitrous oxide. In all cases of this kind local anæsthesia is to be preferred where it can be used. Tuberculous patients are not suitable for general anæsthesia where local can be used.

CIRCULATORY SYSTEM.

Where there is definite heart impairment there is no absolutely safe anæsthetic, but I have found that for most cases where patients complain of their heart they are much better where nitrous oxide and oxygen are used than where local anæsthesia is used. My experience has been that those who complain of their heart have no serious impairment and those who insist they are all right are most apt to have trouble. I, therefore, do not consider the statements of the patient a safe guide as to their actual condition, but determine this by a careful examination of the patient. Local anæsthesia without the use of adrenalin affects the heart very little. In the cases where adrenalin is used, very disturbing symptoms can be overcome to a great extent by giving aromatic spirits of ammonia immediately after injection.

High blood pressure does not contraindicate general anæsthesia. These cases are usually satisfactory with either local without the use of adrenalin or with nitrous oxide and oxygen. The very low blood pressures are the most alarming and will give more concern. A low hemoglobin content also gives a bad prognosis.

NERVOUS SYSTEM.

The neurasthenic patient and neurotic patients are more favourable for general anæsthesia than local, as they do best when they do not see anything. Occasionally you will en-

counter a patient of a very nervous type who will not respond to general anæsthesia but will take local anæsthesia best. Hyperthyroid patients are usually extremely nervous and are usually bad nitrous oxide oxygen patients, and best with local anæsthesia.

STATUS LYMPHATICUS.

The status lymphaticus patient is the most risk for any operation under either local or general anæsthesia. These patients have small blood vessels of poor tone which are apt to rupture with any excitement, and the heart is very small. The safest anæsthesia is local with adrenalin. It is extremely difficult to recognize this type of patient. In men there is very fair complexion and practically no beard, skin extremely smooth, narrow waist, and a tendency toward effeminacy in appearance. In women the only discernible symptoms are scantiness of hair and extreme thinness.

DIABETIC PATIENTS.

Diabetic patients do not usually respond well to general anæsthesia, and the most satisfactory anæsthesia is novocaine with little or no adrenalin.

NEPHRITIS.

Nephritic patients usually have high blood pressure as the outstanding difficulty and may take either local or general anæsthesia, but I prefer nitrous oxide and oxygen in most cases.

TOXIC PATIENTS.

The most dangerous type of patient for general anæsthesia is the one whose heart shows the results of toxin. This is especially true in the fatty type of patient, suffering from an acute cellulitis of the throat. In these cases, where a general anæsthetic is indicated, it is well to keep the patient in light anæsthesia and make the operating time as short as possible.

SEX.

Women, as a rule, make much better patients for general anæsthesia than men. They are less resistant and take the anæsthesia more quietly. The anæsthetic resistance shown by many male patients is probably due to high nerve tension, tobacco and alcoholic habits and high resistance built up in athletic training.

As a rule, women with light complexion and hair are the most favorable for gas anæsthesia. Women with dark complexion and dark hair are more difficult than those with light complexion, and those with sanguine temperament and red hair are the most difficult.

CONCLUSIONS.

When making a decision as to the anæsthetic to be used, the following points should be considered:

1. Character and extent of work to be done.
2. Type of patient.
3. Physical and mental condition of patient.
4. Length of time required to do the work.
5. Skill of operator.
6. Danger to the patient and risk of operator.

Use the anæsthetic which is best suited to the patient, and the one under which the operator can best perform the work.

Those who use both local and general anæsthesia successfully can best appreciate the relative merits of each.

Suffering during a dental operation is unjustified. There is no doubt that fear that there will be pain in connection with the dental operation has caused many people to neglect their teeth and impair their general health. Anæsthesia is the greatest boon to dentistry and the most appreciated service rendered a patient. Therefore it behooves all dentists to acquaint themselves with the correct methods of administering nitrous oxide oxygen, which is undoubtedly the superior method in many cases.

An important consideration in selective anæsthesia is the skill of the operator. It is more difficult to work under nitrous oxide oxygen anæsthesia because it is necessary to work without the co-operation of patients. The throat must be packed to prevent mouth breathing or aspiration and to keep the field clear of blood and saliva. It is sometimes necessary to maintain prolonged anæsthesia, but the shorter the operating time, the better the patient will feel and the less the chance of nausea. There is always the chance of nausea and slight depression from prolonged anæsthesia and when this happens the patient is not well pleased. It is essential to have a definite technique for all operations and to have no lost time and to have plenty of assistants.

Anniversary of the Patron Saint of Dentistry, February the Ninth



ST. APOLLONIA lived in Alexandria, where on February 9th of the year 250, during the persecution of the Christians ordered by the Emperor Decius, she was cruelly tortured by having her teeth knocked out, and then was burned to death. Dionysius, Bishop of Alexandria, says of the Decian persecution, "They seized that admirable virgin Apollonia, and beating her jaws they broke out all her teeth, and kindling a fire before the city, threatened to burn her alive, unless she would repeat their impious expressions. She refused and suddenly sprang into the fire and was consumed." She was canonized shortly after her death and was always known as the patron saint of dentistry.

The Periodontist and His Opportunity



FOR many years certain practitioners have devoted themselves to periodontia. As a result some of the most successful investigators of the effects of deficient diets and faulty metabolism on the teeth and their supporting structures, and correction of these disturbances, have been practitioners of this special branch of dentistry.

The periodontist has many opportunities to recognise deficiencies in diet and to teach their correction long before the patient comes under the observation of a physician. Modern ways of living and lack of function in the mastication of civilized foods have their effect on the teeth and their investing tissues. It is the province of the periodontist to devise means of combatting the effects of this lack of use by teaching general mouth hygiene and proper use of the tooth-brush, which will result in the building up of tissue cell resistance. The periodontist has also called attention to, and devised a means of relieving, occlusal traumas in natural teeth, a condition also resulting from lack of function. If the teeth were used as Nature intended, the cusps would be worn down in the act of milling food. This compensating wear would be even enough, and the stimulating effort great enough, to prevent the result which comes from occlusal trauma. The periodontists, from their study of the bacterial flora of the mouth, have established the fact that, whenever gingival inflammation is present, or acute infection established, streptococci are the predominant organisms, and they are growing in sufficient numbers to attack the tissue cells. After the destruction of these cells, when the chronic stage of infection has been reached, the staphylococci take possession and become the pus forming organisms in all these areas of low-grade mild forms of infection.

The principles of the periodontist in practice are (1) to assume the responsibility of removing all forms of irritation from the mouth, (2) to put all tooth surfaces in such condition that the patient may be able to keep the mouth and teeth in a hygienic condition, and (3) to teach the patient how to maintain this result.—A. F. JAMES, D.D.S. (*Journal of the American Dental Association*, May, 1927).

PUBLIC EDUCATION

DENTAL HEALTH

"The public has decided it wants health talk and means to get it! The lay press is the most powerful medium of instruction for the public in health matters. We must do our best to secure its co-operation!"—Sir Thomas Horder.

I N this department each month will be published short articles suitable for use in the public press. The material has been authorized by the Oral Hygiene Committee of the Ontario Dental Association, and members of the profession may feel free to arrange for its publication in the local papers or magazines.

PYORRHŒA.



THE warning:—that "four out of five" is pyorrhœa's toll—as screamed at you daily from newspaper and magazine advertisements, would seem to be substantiated by the report of certain eminent investigators who declare that approximately from seventy-five to ninety per cent. of individuals of twenty years of age and over, have acquired pyorrhetic lesions.

But though the situation is not so alarming as we are asked to believe, yet pyorrhœa is an all too prevalent disease and one concerning which information should be more widely published.

This disease is one affecting the bony tissue enveloping the teeth and the involved soft tissue structure. It manifests itself by a breaking down of those tissues and structures, accompanied by the progressive loosening of the teeth, and the formation of "pus pockets".

Authorities have established, beyond question, that this disease is a menace to the health, maintaining, as it does, a most favourable condition for the growth and perpetuation of micro-organisms that cause disease.

Much unceasing and fruitful research has been carried on, with a view to discovering the causes of this disease. Many factors contribute to its incipency, such as faulty occlusal balance, improper diet, constitutional disturbances or general ill-health.

But it is safe to say that in many instances pyorrhœa is a direct sequence from neglect of proper oral hygiene.

One of the dangerous features of this malady is that the initial lesion is a bone resorption that may escape detection, due to the fact that the soft overlying gingival tissues may at

this time exhibit little or no change in tone or colour.

Remedial treatment should be prompt. Do not, however, be too easily misled by the urgency of the so-called "pyorrhœa eures", the claims for which are not only in many instances exaggerated, but often totally misleading.

* * *

THE PULPLESS TOOTH.



WITH the widespread publication of medical and dental knowledge in recent years, much information has been given to the laity at large concerning the so-called "pulpless tooth".

For the purpose of conserving a badly diseased tooth to further useful service, it is often found necessary, as you may know, to remove the pulp and insert within the pulp canal a root filling; it is thus hoped to eliminate a possible seat of bacterial infection, and with the present day standards of efficiency in operative procedure, this attempt is being met daily with an encouraging degree of success.

There are those in the dental profession, however, who still hold to the belief that a pulpless tooth is a dead tooth and as such should be removed without hesitation. But the vast majority among their numbers adhere to the view that a pulpless tooth still has left a source of vital maintenance and, hence, that its retention, in many cases, is fully justified.

What, then, is the menace of the pulpless tooth?

Following out the theory of focal infection, it is believed, and the findings are clinically confirmed, that many serious systemic diseases have their origin in the focus of infection that may be found at the root-end, or apex, of the pulpless tooth.

Undoubtedly, this is so!

But equally is it true that many a so-called "dead tooth" is rendering an efficient service without, in any way, compromising the health of the individual through root-end infection.

Throughout the field of surgery there are, perhaps, few operations that require such painstaking care and delicate operative procedure as pulp surgery; and it is because of this, and also on account of the almost unsurmountable difficulties which root treatment presents, that no effort should be spared on the part of the individual towards keeping the tooth vital, by having all cavities filled when small.

Remember, therefore, that a live and healthy pulp is the best root-canal filling possible and the surest guarantee against greater trouble.

* * *

CHRONIC ALVEOLAR ABSCESS.



ONE of the marked characteristics of the acute alveolar abscess is that with its termination, the chronic form follows immediately, and persists.

With the chronic form established, there is probably little or no pain, and the tooth, though slightly lame, can now be used with comparative comfort.

So it comes that you fancy the tooth restored again to health, until you notice a small swelling from which there may be a slight discharge, high up on the gum overlying the tooth root.

Then the tooth wasn't quite right, after all?

This particular type of chronic abscess, in which pus still continues to be discharged on the surface of the tissues, is known as a chronic abscess with a sinus. The pus may be discharged intermittently in minute quantities, or again it may flow in large amounts.

It frequently happens that the sinus will close up and the gum tissue will heal over, only to have the pus burrow its way to the surface again, either through the old, or a new channel, and be discharged.

But it may be that the pus does not find its way to the surface of the tissues, but is absorbed directly into the body fluids from the area of infection.

You have then a "blind abscess", and one that is much more dangerous than the sinus type, since, with the ready passage of the bacteria and of the poisonous products of decomposition into the body fluids, they are carried to distant organs and other tissues where they may set up infective processes much more virulent than that at the end of the tooth root.

Thus, with the chronic alveolar abscess there is established a (so-called) seat of infection which at once becomes an ever present and grave menace until, through medicinal or surgical interference (frequently necessitating the removal of the tooth), the tissues are again restored to health.



British Columbia—W. J. BRUCE, D.D.S., 404 Birks Bldg., Vancouver.

Alberta—JOHN W. CLAY, D.D.S., 914 Herald Bldg., Calgary.

Saskatchewan — O. W. PARKER, D.D.S., Imperial Bank Bldg., Regina.

Manitoba—W. W. WRIGHT, D.D.S., 767 Warsaw Ave., Winnipeg.

Maritime Provinces—J. STANLEY BAGNALL, D.D.S., 34 Larch Street, Halifax, N.S.

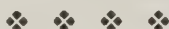
Ontario—LIEUT.-COL. W. G. THOMPSON, 46 Sun Life Bldg., Hamilton.

STANLEY G. McCAUGHEY, D.D.S., 384 McLaren St., Ottawa.

Quebec—M. L. DONIGAN, D.D.S., 127 Stanley St., Montreal.

PAUL GEOFFRION, D.D.S., 308 Sherbrooke Street, Montreal.

Provincial Editors will appreciate receiving from all local societies copies of papers, society proceedings or personal notes, for publication.



MARITIME PROVINCES.



THE next annual convention of the Nova Scotia Dental Association will be held in Halifax on July 17-18-19.

The regular monthly meeting of the Halifax Dental Society was held in the Halifax Hotel on Tuesday, Jan. 10th. The speaker for the evening was Dr. H. W. Kirkpatrick, specialist in Eye, Ear, Nose and Throat conditions, who gave a most interesting talk on the relation between eye disease and infection of the various sinuses of the head with dental conditions. He outlined the anatomical boundaries of the maxillary sinus and stressed its relationship with the teeth. Cases were described in which this sinus was opened into and found blocked with polypi and the floor of the antrum so softened by disease that curettement of this area exposed the roots of the teeth and left them projecting into the antrum. Cases were reported in which persistent antrum disease did not respond to any type of treatment until teeth were removed which had not been suspected since they were negative to the x-ray. An interested case of corneal ulcer was also reported. The teeth were reported negative, all other possible avenues of infection were cleaned up without improvement and finally the questionable teeth were removed, in spite of the favourable x-ray report. The patient then made a very rapid recovery.

The question of the establishment of an evening clinic at

the Dalhousie Public Health Centre, which would supplement the clinics already established, has been discussed for some time by the Halifax Dental Society. It was decided to proceed with this clinic at once. A number of the city dentists have volunteered their services. A committee consisting of Drs. Johnson, Dawson and Eaton were appointed to make the necessary arrangements.

Dr. Howard MacDonald, lately of Sydney Mines, has taken a course in the Surgical Treatment of Pyorrhœa at the Northwestern College, Chicago, and opened an office at No. 1 Cobourg St., St. John, N.B.

The Danhousie Football team which has recently travelled across Canada to play several games in Victoria and Vancouver, contained two dental students: Mr. Tupper (Class '28), and Mr. MacLeod (Class '30).

The sympathy of the profession will be extended to Dr. G. A. Chudleigh on the death of his father; also to Dr. G. H. Fluck and to his son, Dr. Leon Fluck, who entered into partnership with him a few years ago, in the death of Mrs. G. H. Fluck.

—J. S. B.

QUEBEC.

SOCIETE DENTAIRE DE MONTREAL.



HE regular meeting of the Societe Dentaire de Montreal was held November 12th and December 13th, 1927. The speakers were Dr. J. A. Beaudoin, Director of the School of Hygiene of the Universite de Montreal, who gave a paper on "Oral Hygiene", and Dr. W. Baxter of McGill University who gave a paper on "The treatment of pulpless teeth by ionization."

P. G.

* * *

MONTREAL DENTAL CLUB.



HE Annual Fall Clinic of the Montreal Dental Club was held on November 3rd, 4th and 5th in the Mount Royal Hotel, when a most interesting and helpful series of meetings was held.

The clinicians were:

Dr. Alfred Walker of New York.

Dr. Howard Jackson of Detroit.

Dr. W. H. Wright of Pittsburgh.

Dr. L. W. Doxstater of New York.

The clinic was very well attended and everyone voted it the most successful yet. The clinics were repeated four times, twice on Thursday and twice on Friday. On Saturday morning, Dr. Guido Fischer's film, "Local Anæsthesia," and The Metropolitan Life Insurance Co.'s film, "Fighting for Dear Life," were shown.

Dr. A. L. Hanley, of Brockton, Mass., who was to give a paper and clinic on "Gas Anæsthesia," was unable to be present, owing to the floods in the New England States.

The various papers given at the Fall Clinic will be published in Oral Health.

M. L. D.

* * *



THE monthly meeting of the Montreal Dental Club took place on December 17th, when through the kindness of Dr. J. S. Dohan, the meeting was held in the new Mount Stephen Club. More than fifty members sat down to dinner, and following this, a very pleasant evening was spent, in ideal surroundings.

Dr. A. W. Mitchell gave a review of Dr. Howard Jackson's clinic on x-rays and Dr. I. K. Lowry gave a paper and exhibited numerous models of Dr. W. W. Wright's clinic on denture construction. Mr. Russell Copeman of the Montreal Dental Supply Co., then gave a paper and clinic on "Removable Bridgework and Attachments."

All the papers and clinics were interesting and well prepared. Plans have been made to hold a week-end skiing party on February 4th and 5th, at the Hermitage Country Club at Magog, Quebec, and everyone is looking forward to it.

—M. L. D.

* * *

ONTARIO.

EASTERN ONTARIO.



THE Kingston Dental Society, with Dr. S. H. Simpson as president and Dr. Brown as secretary, is having some successful meetings. Two all-day clinics have been held.

In October, Dr. Jarman of Toronto read a paper and presented table clinics on Exodontia, using nitrous oxide and oxygen, and conductive anaesthesia. He afterwards presented

practical clinics in the offices of Drs. A. M. Clark and H. A. Stewart. The Society then went to the Rockwood Hospital, where more clinical cases were presented by Dr. T. H. Renton.

In November, Dr. F. A. French of Ottawa gave a clinic with practical cases, on Impression Taking and Corrective Procedure. The Society were the guests of Dr. C. C. Nash at a venison dinner, and afterwards Dr. French read a paper on the Fundamental Principles Underlying Denture Construction.

S. G. McC., *per*
H. A. STEWART.

* * *

OTTAWA DENTAL SOCIETY.



TTAWA Dental Society are having a very successful year, the membership is large and the average attendance almost 100 per cent.

In November Dr. Lorne MacLachlan put on a very excellent clinic on "All Compound Impressions", giving special attention to the Schlosser Adaptation of the Tench Technique. Dr. MacLachlan has put a great deal of time and thought on this clinic and it is "one of the best". Dr. Felix French opened the discussion.

At the December meeting Dr. H. Jost, Anæsthetist to the Ottawa Civic Hospital, gave one of the best papers on "Anæsthesia," that it has been the writer's privilege to hear. The paper was discussed by Drs. D. C. Coupland, Milton Graham, and S. G. McCaughey.

At the January meeting, Dr. A. E. Webster will speak on "Focal Infection." At this meeting the Medico Chirurgical Society of Ottawa will be the guests of the Ottawa Dental Society at dinner at the Chateau Laurier.

A special invitation is extended to the dentists of Eastern Ontario, time 6.30 p.m., January 16th, 1928. Kindly let the Secretary, Dr. I. W. Hamilton, 142 Laurier Ave., W., know if it is convenient for you. Come if possible, you'll be welcome.

Congratulations are in order for Dr. W. C. Macartney, who has this month been elected President of the Kiwanis Club of Ottawa.

S. G. McC.

MANITOBA.



OME time ago I gave a sketch of a book of poems making the statement that "Morning in the Marsh" was the only volume of poems published by a Canadian dentist. I find I was mistaken, as I have recently had the pleasure of reading "Westward and Other Poems," a book of seventy-five poems, published in 1924, by Dr. E. E. Kinney, of Vancouver. I've spent several refreshing periods reading this lovely volume. In addition to Westward, with which the book opens, I think the choice expressions are found in Semiahmo Bay, A Reflection, Fairyland, The Night Elves at White Rock, To a Meadow Lark, and Truth. Let me give you a taste of it in the last four lines of Truth:—

"We trust the Record, and by Faith we see
The grander Revelations yet to be,
Sublime beyond our highest reach of thought
Forever with the richest blessings fraught."

Dr. Kinney shows a particular love of the beauties of nature, but his book ranges from children's songs to things of science, and should be read by every dentist. I have often wished C. N. Johnson would publish his poems in book form for I like to think of him always as a Canadian. I never miss reading his contributions to Oral Health. But I got a shock the other day in Russell Lang's book store when I happened upon a book which listed Canadian poets. I looked in vain for Johnson, McElhinney, Kinney—I guess they have not paid 1927 dues to the Authors' Association, but their poetry should make all Canadians (particularly dentists) proud of them.

Dr. Fred. Cadham addressed the November meeting of the Winnipeg Dental Society on Vincent's Infection. As Dr. Cadham is a physician who has done considerable original work on this subject and as the disease has been much more prevalent lately than usual, a very interesting evening was the result.

Dr. Schlosser, of Northwestern University Dental School, has been secured for a two-day clinic (Jan. 9th and 10th) before the Manitoba Dental Association. The annual business meeting is held at the same time.

The Winnipeg Dental Society unanimously adopted the general principles outlined in the proposed new constitution of the Canadian Dental Association.

Of course, now that Manitoba is actually producing gold and has such large new mineral areas being opened up, we shall soon be ordering Flin Flon, and Central, W.A.D., etc., instead of XXX or Tinker.

Yes, December was chilly.

A mechanic named Sirkis paid a fine to the Manitoba Dental Association on being convicted for practising without a license. It was a second offence charge. The accused admitted taking impressions and inserting dentures, but maintained that he was not practising dentistry. The judge said \$400.00 and costs.

Dr. F. E. Warriner was elected a member of the Winnipeg School Board for Ward 2 (centre Winnipeg), in the December elections. . . Congratulations, Fred!

The election of the board and officers of the Manitoba Dental Association resulted as follows:—

President—J. H. Merkeley.

Vice-President—E. H. Clark.

Secretary—J. F. Morrison.

Reg.-Treasurer—W. W. Wright.

Other members—H. A. Croll and D. A. McCarten.

About 130 dentists attended the annual meeting of the Manitoba Dental Association, which was noted for the large number of men from points outside Winnipeg. When one compares the interest of these dentists who come in to the meeting at considerable expense as compared to stay-at-home city dentists who will not even take two days off to attend to their profession's business and learn from such men as Dr. Schlosser (the clinician present), a feeling of regret that we are so narrow minded, steals over one. About half of the Winnipeg dentists were present. It's human nature, apparently, as I noted that not half the Toronto city dentists were present last May at the wonderful convention held at their very door.

In addition to again voting \$1,000.00 for educational work, and funds to send delegates to the reorganized Canadian Dental Association, with power to vote Manitoba into the new body, the main business was a spirited discussion of the Oral Hygienist. It was decided to postpone asking for legal status by hygienists for a year; in the meantime a committee was appointed to further study the question.

—W. W. W.

ALBERTA.

EDMONTON DENTAL SOCIETY.

 HE Edmonton Dental Society is to be congratulated upon its decision to arrange mid-winter clinics the last of January and to invite, without fee, the dentists of Northern Alberta. This is a fine spirit and a lot of good fellowship is to be thrown in for good measure. A ladies' night will be held, comprising a banquet followed by dancing.

Nineteen Twenty-Eight

INETEEN hundred twenty-eight has just arrived with all its possibilities and opportunities. Its advent brings to every one moments of deep thinking and reflection. Reflection upon what happened in nineteen twenty-seven—deep thinking about what will happen in nineteen twenty-eight.

Nineteen twenty-seven has gone and with it the lost opportunities for service to others, for personal betterment, for development and growth. In looking back over the past year we recognize instances of which we did not take the best advantage. Some of those times will never be repeated to us, but other opportunities will show themselves during the new year and our mistakes of yesteryear will make us all the more observant of the chances to come.

So we progress—unrecognized opportunities, finally noticed, showing us the bigger and better way toward greater accomplishments.

May the New Year fulfil your greatest and sincerest desires for all that will work toward well-being.

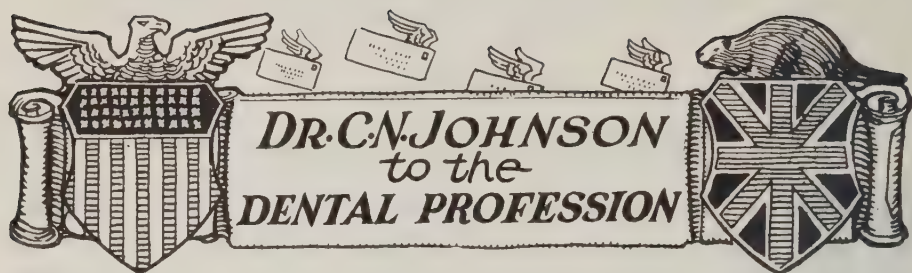
“Think naught a trifle, though it small appears;

Small sands the mountain, moments make the year,

And trifles, life.”

—EDWARD YOUNG.

ODONTOMES AND SUPERNUMERARY TEETH.—Supernumerary teeth are of quite common occurrence in the upper molar region, but in the mandible they are certainly rare. The whole question of the ætiology of supernumerary and supplemental teeth, and the relation between them and the various forms of odontome is still a subject upon which it is extremely unwise to be dogmatic.—*Dental Surgeon, London.*



He Was a Dentist



WAS on a train one day and chanced to go in the wash room of the sleeper which was well filled with men smoking and talking. One of them seemed to be the chief spokesman of the party. He was holding forth in rather a loud voice on the minor events of the day and handling his topics with much noise and little intelligence. He was just *talking*. The other occupants of the room were sitting in a subdued sort of way only mildly interested, and apparently tolerating the speaker because they had to. They made few remarks on his observations, but their studied silence failed to quiet him. The more they receded to the background the more he forced himself to the front. Instead of perceiving that he was merely a nuisance he apparently imagined that he was making a tremendous impression on the listeners. He was chewing vigorously on the end of a cigar and aiming frequently at the cuspidor—sometimes hitting it.

"You see, it's just like this," he would exclaim, as he ran out of gas on some topic, and branched off on another. It required very little to exhaust his information on any one subject, but, nothing daunted, he picked up another with alacrity and was off on a new lead before the others had a chance to make any remark, even if they had seemed so inclined. The farther he went the more puffed he became with his own importance. He talked glibly of a summer resort where he had just been, and confided to every one that it was "a frost." He commented on the country through which the train was passing and pitied the "poor boobs" who had to live in such a place. He brought up the latest political scandal and hinted that he knew more about that than most folks if he only cared to tell—and then proceeded to do so with an amazing display of ignorance of the whole affair. He talked of baseball and the swim across the channel; of prize

fighths, and why Dempsey lost; of horse races, and how all the jockeys were "crooks"; of automobiles and where the leading manufacturers made a terrible mistake; of the latest crime and how the whole thing happened (he would bet he knew who pulled that gun); of the latest moving picture, etc., etc.

And then suddenly he shifted to the health columns in the newspapers, and I saw something coming. All the time the man had been talking I was making a mental estimate of him, and trying to place him at his proper rating. The more he talked, the more I thought I recognized his type, and I was therefore not so very much surprised when, in commenting on a chance remark by one of the listeners on a matter of health, he blurted out: "You see, I am a *dentist*, and I know something about these things. I live in," mentioning a town in a neighbouring state. "Yes, sir, people come to me from all over." And then he began a lengthy dissertation on the various diseases of the mouth. "Now, there's *pyorrhea*," he said. "That's a terrible disease, and most folks has it—wouldn't be surprised if some of you fellows right here has it, and don't know it. They say 'four out of five', you know, and I guess that's about right. I specialize in *pyorrhea*. I specialize in a good many things, and folks are coming to me from all over." He looked vastly important as he said it.

"Do you know Dr.," asked one of the men quietly,—mentioning the name of a dentist of national note who lived in the same town. "Oh, yes—know of him," said the speaker. "High brow,"—deprecatingly. "Don't come in contact with him very much—haven't any use for this high brow stuff myself. He was away attending a meeting a few weeks ago and I got one of his patients. I don't take any stock in those dental societies—it's all the bunk. I'd rather go off on a fishing trip where you can have some fun."

The quiet gentleman remarked that Dr. So and So had been his dentist for years and he had for him the highest regard, and that his whole family were very much attached to him. And then he added: "I am, of course, not familiar with dental societies, or the detail of what is done at these meetings, but if they develop the type of men represented by my dentist, I should hardly be inclined to call them bunk."

"Oh, well—call 'em what you like, then," said the dentist, a trifle crestfallen. "That's what I call 'em." He suddenly seemed to lose interest in the conversation, and rising and

stretching himself, he said: "Guess I'll go back in the sleeper and finish that story I was reading."

Then I sat down beside the quiet gentleman and thanked him for his kindly remark about the dentist who had cared for him and his family so long. "Do you know him?" he asked. "Yes," I said, "he is a dear friend of mine, and I am very fond of him. Everything good you have said of him is true, and I am grateful to you for saying it."

We talked at some length over the virtues of our mutual friend, and then drifted to other matters of common interest. After a pleasant visit, as we were nearing the end of our journey, he turned to me and said:

"What is your business—if I may ask?"

"I am a dentist," I said.

"A dentist!" he remarked, looking at me with a quizzical smile. "It seems there is some difference in dentists." Which I accepted as one of the greatest compliments I ever had.

C. H. Johnson

Opportunity

*They do me wrong who say I come no more
When once I knock and fail to find you in;
For every day I stand outside your door,
And bid you wake and rise to fight and win.
Wail not for precious chances passed away,
Weep not for golden ages on the wane;
Each night I burn the records of the day,
At sunrise every soul is born again.
Laugh like a boy at splendours that have sped,
To vanished joys be blind and deaf and dumb;
My judgments seal the dead past with its dead,
But never bind a moment yet to come.
Though deep in mire, wring not your hands and weep,
I lend my arm to all who say: "I can."
No shamefaced outcast ever sank so deep
But he might rise and be again a man.*

—WALTER MALONE.

Oral Health

Vol. 18

TORONTO, JANUARY, 1928

No. 1

EDITOR:

WALLACE SECCOMBE, D.D.S., F.A.C.D., Toronto, Ont.

CONTRIBUTING EDITORS:

C. N. JOHNSON, M.A., D.D.S., F.A.C.D., Chicago.

W. E. CUMMER, D.D.S., F.A.C.D., Toronto.

Entered as Second-Class Matter at the Post Office Department.
Ottawa.

Subscription Price, Canada and United States, two dollars per annum; elsewhere three dollars. Single Copies 25c. Free distribution to all members of the Dental Profession practising within the Dominion of Canada and Newfoundland.

Original Communications, Book Reviews, Exchanges, Society Reports, Personal Items and other Correspondence should be addressed to the Editor Oral Health, 102 Wells Hill Avenue, Toronto, 10, Canada.

Subscriptions and all business Communications should be addressed to The Publishers, Oral Health, Royal Bank Building, 269 College St., Toronto, 2, Can.

EDITORIAL

*Standing with folded wings of mystery,
The New Year waits to greet us—you and me.*

*Her arms are full of gifts; her feet are shod
All fitly for rough roads or velvet sod;
Her eyes are steady with belief in God.*

*Her voice falls sweetly as a vesper bell
Where trust and hope all lesser notes dispel;
Scarce knowing why, we feel that all is well.*

*She smiles a little as she turns away,
Breathing a promise for each coming day;
And we—we pause a little while to pray!*

—LILLIAN GARD.

* * *

The New Year Greets Us



THE year Nineteen Hundred and Twenty-eight greets the Canadian people with a smile. A New Year always enters full of hope of better things, but this year holds more of promise and confidence and goodwill for this Dominion than any year that has preceded it.

To the members of the Dental Profession "Oral Health" extends sincere wishes that the New Year may be one of great happiness, achievement and service.

Each month throughout the year every dentist in Canada and Newfoundland will continue to receive "Oral Health," and its usefulness to the profession will be enhanced by not only reading its pages but by forwarding correspondence, scientific papers and case reports. It is only through the co-operation of every member of the profession that the magazine may best serve the interests of Canadian Dentistry, and further the advancement of dental science and practice throughout our great Dominion.

The Value of Organized Dentistry



N encouraging and comprehensive statement appears in this issue written by Doctor Clarence Routley outlining the organization and accomplishments of organized Medicine in Canada. Dr. Routley is Secretary of the Canadian Medical Association and prepared the paper at great personal inconvenience at a time when he was particularly busy with numerous other duties. This was done that it might follow closely upon the publication of the new Constitution and By-Laws of the Canadian Dental Association.

The article is an illustration of the great possibilities for service that present through strong representative Canadian national organizations of the professions, such as Medicine and Dentistry. Dr. Routley also expresses the friendly interest and support of Medicine in Dentistry's attempt to strengthen her organizations.

Up to the present there have been very few Dental societies in Canada, either provincial or national, with an annual membership. In most cases it has simply been a case of holding a convention and those who attended were members for that year and those who were absent were not. The only satisfactory basis for membership is upon a permanent annual fee plan, with attendance at conventions and other meetings as incidental to that. This strengthens the associations' finances and permits of more extensive and better work being done. Furthermore the officers, knowing the resources of the organiz-

ation in advance are able to better plan convention programmes and more vigorously institute other services. Otherwise the Convention Committee is called upon to obligate the Society in advance in the hope that sufficient members of the profession will attend to enable the committee to meet its indebtedness.

A permanent annual membership plan is being put into effect in Ontario at the present time and will enable the Ontario Dental Society to do better work within itself and lend stronger support to the Canadian Dental Association. The Ontario annual fee has been fixed upon a basis to include membership in the Canadian Association, and also enable graduates to obtain membership in the University of Toronto Alumni Association, including the University Monthly, upon payment of a small additional fee.

Another important advantage of annual membership is that it permits the distribution of membership cards which are recognized by all official Dental organizations throughout the world.

It is greatly to be desired that the provincial Dental organizations throughout the Dominion may be advanced and that these may in turn lend their best support to the Canadian Association, all being so developed as to be in keeping with the honour and standing of a great profession.

Doctor Percy A. Ash

 R. PERCY A. ASH, the subject of this month's frontispiece, graduated in Dentistry from the University of Pennsylvania in 1903 and was subsequently appointed to the Faculty of Dentistry of the University of Sydney, where he has served for twenty years. During the greater part of this period, he was in active dental practice in Sydney and has edited the *Commonwealth Dental Review* and its successor, *The Dental Science Journal of Australia* since 1910.

Previous to this study of Dentistry, Dr. Ash took a course in Law and more recently has completed courses in Accountancy and Arbitration, and holds the diplomas of Associate of the Federal Institute of Accountants of Australia and Fellow of the Institute of Arbitrators, London, England.

Dr. Ash was welcomed to Toronto as the official representative of the University of Sydney at the Centenary Celebration of the University of Toronto in October, 1927.

English Horticulturists Honour Dr. Frank E. Bennett

 R. FRANK E. BENNETT, past president of the St. Thomas Horticultural Society, and the man who was largely responsible for earning for that city the title of "The Flower City of Canada," has been elected to a fellowship of the Royal Horticultural Society of England. Announcement of his elevation to this distinguished office was recently received by Dr. Bennett from the secretary of the Society. The Royal Horticultural Society of England is looked upon as the leading organization of its kind in the British Empire. It is the pioneer of horticultural societies in the British Isles and numbers many of England's most prominent men among its members.

A Luncheon Study Club

 HE Dental Forum, Milwaukee, is starting a luncheon-time Study Class to meet at a local Hotel once each week at 12.15, when, following a light lunch, study will proceed for one hour, from 12.45 to 1.45 p.m., giving everybody ample time to be back at the office by two o'clock.

Obituary

DR. ARTHUR DAY, TORONTO.

 S we go to press it is with sincere regret that we learn of the untimely passing of Dr. Arthur Day, Past President of the Academy of Dentistry, Toronto, and for many years Chairman of the Academy Oral Hygiene Committee.

A large and representative group of dentists and citizens gathered at the funeral service and there were universal expressions of appreciation of the late Dr. Day's service, both to his chosen profession and the welfare activities of the community in which he lived.

There will come a day when physiologists,
poets and philosophers will all speak the
same language and understand one another.

—*Claude Bernard.*



DR. ARTHUR D. BLACK, CHICAGO.
Dean, Northwestern University Dental School.

DOCTOR BLACK was a member of the executive of the 1928 meeting of the Chicago Dental Society serving in the capacity of chairman of the Programme Committee.

ORAL HEALTH

*A JOURNAL THAT STANDS FOR THE "OUNCE OF
PREVENTION AS WELL AS THE POUND OF CURE"*



Vol. 18

TORONTO, FEBRUARY, 1928

No. 2

Saskatchewan Mouth Health Campaign Promises to be a Splendid Success



PREPARATIONS and organization for the Canadian Dental Hygiene Council Oral Hygiene campaign in co-operation with the Dentists of Saskatchewan, which will extend for six weeks from February 22nd, is meeting with splendid support and promises to be an entire success. Doctor Harry S. Thomson, Field Officer of the Canadian Dental Hygiene Council, has been spending his entire time for some weeks in preparation and organization and has written from Regina under date of January 30th as follows:

"We are meeting with splendid co-operation from everybody for our Saskatchewan Mouth Health Campaign. I am now just about half way through the Province on my organization trip, and in every instance I have found that the dentists have had lined up almost every one of prominence or that is connected with public welfare in every town and city. The response to our appeal for assistance in putting over our campaign has surprised as well as delighted us, and I am very optimistic of the result.

"We are receiving 100% co-operation from the Departments of Health and Education. The Ministers and Deputies of both Departments are very enthusiastic and are lending us every assistance. The Department of Health is providing us with 50,000 Oral Hygiene booklets, 10,000 of these printed in the Ukrainian language. The Department of Education is supplying us with 60,000 Mouth Inspection chart blanks. It is also providing considerable publicity. This Department is also sending out a letter to every school teacher and principal in the Province, outlining the aims of the campaign, and its

objects, and requesting their full co-operation. Department of Health is also sending a letter out to all its health officers and public health nurses.

"In many of the towns we find the interest sufficiently keen that it has been thought best to appoint laymen on the organizing committee instead of dentists (the dentists always being *ex officio*). In one town in particular the Mayor is Chairman of this Committee. In another, School Inspector for the district, and in the third Medical Officer of Health is Chairman, so you can see from this that the dentists have done very splendid preliminary work in interesting those with whom we would wish co-operation.

"The Free Dental Clinic is well organized and the dentist will commence his duties February 13th, working through Red Cross and Government Outpost Hospitals,—the C.D.H.C. paying the salary and travelling expenses, the chair and dental engine being provided by the Ash-Temple Company, maintenance and Hospital quarters for the dentist is being furnished by the Government Department of Health, and supplies such as filling material, anæsthetic, etc., are provided by the Provincial Red Cross. Surely here we have a splendidly co-ordinated co-operative effort which ought to produce excellent results.

"We are having splendid weather out here, very cold but sunshine all the time. I have been constantly on the move, working as many hours of the day as I am awake, but feeling in splendid fettle."

* * *

COPY OF CIRCULAR LETTER ISSUED BY THE DEPARTMENT OF EDUCATION TO SCHOOL PRINCIPALS.

Regina, January 25, 1928.

To the Principal.

Dear Sir:—

"The Canadian Dental Hygiene Council, working through the Saskatchewan Dental Society, with the co-operation of the provincial Departments of Public Health and Education and the Saskatchewan Division of the Canadian Red Cross Society, has planned an intensive six weeks *Oral Hygiene* campaign for the province of Saskatchewan, beginning February 22, 1928.

"Capable speakers will be employed who will present to the public throughout the province, the latest findings of scientific men on the subject of *Preventive Dentistry*, using for the

purpose charts, lantern slides and moving picture films as well as songs and stories suitable for the youngest school child.

"In as many centres as possible a dental examination of children will be a part of the campaign. It is particularly urged that pre-school children of four years and over, as well as children of school age, should be included in this examination.

"It is not necessary to emphasize in the case of teachers the importance of mouth hygiene in relation to general health. It is a well known fact that decayed teeth cause insufficient mastication and food contamination and may be a source of general infection as well. They mar personal appearance and impair physical efficiency.

"This effort toward public education in the facts of mouth health is highly commendable and is approved by the Ministers of Education and Public Health.

"The active co-operation of the teachers in the schools will do much to further the success of the campaign. Your personal assistance and interest in this matter are therefore earnestly requested.

"Yours faithfully,
"AUGUSTUS H. BALL,
"Deputy Minister."

* * *

COPY OF CIRCULAR LETTER ISSUED BY THE DEPARTMENT OF PUBLIC HEALTH TO HEALTH OFFICERS.

Regina, January, 1928.

To the Medical Health Officers,—

Dear Doctor:—

"The Canadian Dental Hygiene Council, working through the Saskatchewan Dental Association, is planning to carry out an intensive Oral Hygiene Campaign in the Province of Saskatchewan, commencing about February 15th, when it is hoped to carry addresses on Oral Hygiene and mouth health to everyone in the Province.

"In addition to this educational work, they propose to provide free dental service for those unable to pay for dental treatment, and to those in remote areas where dental service is not available; this service will be supplied by means of a travelling dental clinic.

"A campaign which promotes dental health should result in improving the general health of the community and it is for

this reason this campaign has been endorsed by the Department of Public Health and the Department of Education.

"It is the aim of the Dental Hygiene Council to educate the public that dental disease can be greatly reduced, in many cases prevented by improved habits of living; a suitable diet; thorough mastication, and regular mouth cleansing and care.

"In your capacity as Medical Health Officer, and also in your private practice, you no doubt frequently come in contact with cases which require such service, and we would greatly appreciate your co-operation not only during the campaign, but also with the preliminary organization work. This is also the desire of the Central Committee of the Oral Hygiene Campaign.

"If you can find it convenient to assist, possibly by giving an address, or referring cases, you might get in touch with the local Chairman of your district, Doctor. of

"A great deal of work has already been done toward making this campaign a success, and a splendid programme has been arranged.

"Trusting that we may count on your assistance and co-operation, I am,

"Your obedient servant,

"F. C. MIDDLETON, M.D.,

"Acting Medical Minister."

* * *

EXAMPLE OF THE CORDIAL CO-OPERATION OF THE DENTISTS IN THE SASKATCHEWAN CAMPAIGN.

The following letter is one of many received by the committee from individual Dentists throughout Saskatchewan indicative of the fine spirit shown by the dental profession toward the Saskatchewan campaign:

"Practising for twenty years in this province, and for the past fourteen years in the centre of the largest foreign born population in the province, and probably in Canada, I feel able to speak with some knowledge of the requirements of our more backward citizens and what their reaction to educational work of this kind is likely to be. I will, therefore, at your suggestion offer my conception of how to approach the question in such a way as to accomplish the greatest amount of permanent good with the least amount of friction, effort or expense.

"We have nurses visiting all our schools periodically, probably not frequently enough, but still doing valuable work, and

at intervals we have had dental work done by travelling dentists visiting our schools in outlying districts. These, too, have done valuable work. Everything considered, however, I believe the most valuable work along the lines of dental hygiene has been accomplished by those teachers, who, realizing their responsibilities and opportunities, have day by day impressed upon their pupils the necessity of maintaining clean healthy mouths.

"I do not mean that the school nurses or travelling dentists are of little value. They are doing good work, but a work of much greater and more permanent value would be accomplished by the teaching profession, if the necessity of it were more firmly impressed upon each of its members. I will, therefore, outline what to me, seems the most effective way of carrying on a campaign of this kind.

"FIRSTLY. Confine activities of this kind as far as possible to the dental profession or those actually interested in this work, in co-operation with the Departments of Education and Health of the province.

"SECONDLY. In co-operation with the above-named departments, carry on a vigorous campaign amongst the students attending the normal schools, and in addition secure a list of those already teaching, and as far as possible stimulate a greater interest among them in oral hygiene work. Pamphlets and books on Mouth Health would be of value here.

"THIRD. Endeavour to secure the active co-operation of every dentist throughout the province in assisting the teachers in the surrounding districts in oral hygiene education, by giving talks on oral health and, if possible, secure lanterns and slides that could be loaned to dentists everywhere in the province when required. Slides leave an impression that no amount of talking would do.

"FOURTH. If possible have the dentist or dentists in each community, in conjunction with the school teachers of the surrounding districts, organize an oral hygiene society, keep up interest as far as possible and carry on from year to year continuous oral hygiene educational work.

"If in addition talks were given to different organizations and articles given to the press and distributed in pamphlet form, greater interest would be stimulated. Operative work and free dental service in remote areas also helps. The point to keep in mind is this, educational work, to be of real value must be carried on among the young. Psychologists, publicists and

hygienists are rapidly appreciating the fact that to accomplish any worth while reform, the greatest and almost only hope is with the young, and the more thoroughly and completely you bring your subject in contact with the young, the greater will be the result of your effort.

"The nurses and visiting dentists do a great amount of immediate good, but one difficulty is that while their presence brings relief, it also sometimes results in considerable suffering. To the children this seems unpleasant, while daily tooth brush drills and health talks create a different attitude of mind upon the pupil. Only a few of the children directed to the dentist by the visiting nurse, ever reach a dental office. An infinitely small proportion of the children in need are likely to meet or come in contact with the travelling dentist. Upon the other hand, children frequently tell me what their teacher has told them, with plain evidence that to them the teacher is the greater authority. Why not then capitalize the teacher's position to a greater extent than we are doing?

"The educational work of the teacher develops an entirely different attitude and outlook on the part of both pupils and parents. I have families of foreign extraction attending my office regularly, as a result of the work of certain teachers in past years in this community. One foreigner told me recently, 'My people go more to the Doctor and not so much to the Lawyer.' My practice includes a large foreign element, the adults are frequently unable to speak English, or speak it only very poorly, and I have found the above to be true. They place a good deal of trust in the teacher, they know to begin with that the teacher is not there to exploit them and many are keen to follow a teacher's advice when they would be suspicious of others. My idea is to get them young and get them right. Talks to different organizations such as service clubs, women's organizations and home and school clubs create more general interest and greatly extend your contact.

"This is a long rambling letter, but I am deeply interested and hope this may be of some assistance to the committee. You may count on my help whenever and wherever I can assist."

With such co-operation as the foregoing letters indicate the Canadian Dental Hygiene Council campaign in Saskatchewan should prove of great public value and will even of itself justify the Dominion Government in the grant it has made to the Council to assist in public welfare work of this nature.

* * *

LETTER FROM HON. S. C. MEWBURN, PRESIDENT,
CANADIAN DENTAL HYGIENE COUNCIL.

Hamilton, 17th January, 1928.

"My Dear Dr. Grant:—

"I must apologize for not having replied to your letter of 20th December last, enclosing copies of Minutes of your Executive meeting, which I have read with great interest, and I have also received to-day, minutes of your meeting held on the evening of the 6th inst.

"I think it is wonderful the strides you are making in connection with this Council, and I only regret that I have been such a weak sister in not being able to lend greater assistance to the organization.

"I have, on more occasions than one, taken up with some of the Life Insurance Companies the hope that they would get behind our Organization in a bigger way, but I realize all these things take time.

"Assuring you of my continued interest in the Council, but regretting my inability to give the time and attention to it that I desire, believe me,

"Yours faithfully,
"S. C. MEWBURN."

* * *

CENTRAL COMMITTEE APPOINTED.

The Saskatchewan Dental Association appointed a central Committee in Regina, with Dr. A. J. Brett as Chairman, Dr. L. J. D. Fasken as Vice-Chairman, and Dr. T. I. Robb, Secretary-Treasurer, to organize the Oral Hygiene Campaign. Sixteen Local Committees were also appointed throughout the Province, as published in November Oral Health.

Montreal Dental Assistants' Association

HE monthly meeting of the Montreal Dental Assistants' Association was held on Monday, January 16th, 1928, at 8.30 p.m., at the Dental Faculty, McGill University. Following the regular order of business, Dr. F. H. Baxter, Professor of Operative Dentistry, McGill University, presented the subject of Ionization when a series of very interesting slides of practical cases were shown. Dr. Geo. S. Cameron, Professor Prosthetic Dentistry, McGill University, and Dr. J. S. Dohan, Associate Professor Prosthetic Dentistry, assisted Dr. Baxter with the slides.

What the Dental Profession Owes to the Public*

C. N. JOHNSON, CHICAGO, ILLINOIS.



ONE of the chief glories of professional life relates to the fact that, from time immemorial, it has always been taken for granted that professional men should be willing to devote a goodly part of their time and energy to service for the poor and needy without a thought of recompense. The willingness to do this on the part of professional men has stamped them as different from the other men in their ethical relations with their fellowmen. It is never expected that the merchant will hand out commodities to people for nothing, no matter how poor they may be. No one looks for such a thing, and yet the world accepts the fact quite naturally that professional men must minister to the needs of suffering humanity regardless of their ability to pay; and, in the case of the very poor, it is taken for granted that the service is rendered for nothing. Whether the attitude of mind, and the practical application of it, is just to the professional man or not, the fact remains that it is established by tradition and that this tradition has given to professional men a status in the estimate of the world which has placed them in a class by themselves. There is no question that the estimate is deserved because of the self-sacrifice which has become, by common heritage, part and parcel of every professional man's life.

Therefore, the full conception of what the dental profession owes to the public can never be realized without a clear recognition of the heritage which was ours when we became a profession. We must follow in the footsteps of the older professions if we aspire to full professional stature in the eyes of the world, and we must take a chapter from the book of medicine and be willing to do what medicine has done for the welfare of our fellowmen. To this end, we must never hesitate when the occasion arises to devote part of our time to the public good, and the only question we have to decide is what is the public good.

Assuredly, as far as dentistry is concerned, the greatest public

*Read before the District of Columbia Dental Society, Oct. 11, 1927, and published by courtesy of the Journal of the American Dental Association.

good is the limitation and the eventual prevention of dental disease. But this problem is more easily stated than solved. First, we must learn how to prevent dental disease, and while we have made appreciable progress in this respect, our methods are yet immature, and the results more or less uncertain.

It is true that, if a growing family of children is placed under the care of a conscientious dentist, and this family lives under ordinarily good hygienic and dietetic conditions, there is no question that the children may be brought to adult life with good serviceable sets of teeth; but this requires co-operation by the family and the dentist. It means knowledge on the part of the dentist as to what to do, and it means education of the family. And this much may be said: dentists are gaining more knowledge every day, and the people are becoming better educated. Recently, an observant gentleman made this remark: "I have just returned from a summer camp in the north woods where I met many young people on a vacation, and I must say that the condition of the teeth of the coming generation is a great compliment to the dental profession. We saw no such mouths in the young people of my day." And this fact must impress every one of adult or later life, if they are sufficiently observant.

But this relates only to certain classes of society, leaving practically untouched the great mass of our people who, more than any one else, need a new light as to the significance of the teeth as factors in health and disease.

And it is to this great mass that the chief duty of the dentist relates as far as his obligation to the public is concerned. How shall they be educated as to the significance of the teeth, and how shall they be cared for after they have learned the need of it? With the aggregate of ignorance which it must be admitted exists to-day, it may seem paradoxical to affirm that the education of the public has gone faster than the ability or disposition of the dentist to meet the situation and render the service that is demanded of him. But this is an incontrovertible fact. Instances are common all over this country in which people have been taught that it is necessary to give early attention to the teeth of their children, only to be confronted with lack of co-operation or a pronounced indifference when they apply to the dentist for the care of these teeth. This is confusing to the parent; often it is embarrassing, and always is disappointing. If the dental profession is to do its full duty to the public, it must first keep faith with the patients

who apply for service, and it must recognize the same obligation to children as it does to adults.

Doubtless, many men find it difficult and even disagreeable to work for children. Temperamentally, they "don't want to bother with them." It is needless to argue with this type of man; it is useless to say to him that the greatest joy of professional life comes from working for children, that nothing relieves the tedium of a long hard day at the chair like the prattle of a little child or the chatter of an older one, that children bring to the office a brightness and cheer which can enter in it no other way, and that the loyalty of a child is one of the most precious of all professional possessions. Men who are temperamentally unsuited to care for children can never be made to minister to them successfully, but such men should at least assume an honest attitude in the matter and refer children to some one who wishes to work for them, instead of trying to cloak their indifference by telling the parents that children's teeth are not amenable to treatment or that it is ill advised to endeavour to treat them because of their inevitable early loss. To say that a deciduous tooth is not to be cared for because it must be lost in a year or two is either a species of cowardly shirking, or it is an indication of failure to recognize the importance of these teeth to the health and comfort of the child or to the integrity of the permanent teeth. The most significant thing in dental practice to-day, aside from the prevention of disease, is the proper care of children's teeth, and it has been only along that line that dentistry has been enabled to make such a demonstration as to call forth the exclamation of admiration just quoted from a lay observer. The sole means by which we can maintain and advance our status in the public mind is to preserve inviolate an attitude of conscientious endeavour toward the solution of every problem presented to us by our patients; and we must not shirk the seemingly disagreeable kind of service merely because we would prefer to do some other kind. The reputation of medicine and dentistry was not made by shirking duty of any kind, and we must not expect to preserve it by that means.

There is one paramount duty which the profession owes to the public in its function of private practitioner. Every dentist conducting a practice should so plan a campaign of preservation that the teeth of one generation shall be better than those of the generation preceding it. There is nothing more gratifying in private practice than to bring children up to young

manhood and womanhood with a fine set of teeth at an age when their parents had lost many or all of their teeth and were suffering the consequences of such loss. This kind of service carried on generation after generation, even if we do not discover a sovereign remedy for dental decay, as we fondly hope to do, will result in a vastly better condition of the teeth of the people as a whole, a fact already amply demonstrated in the teeth of the American youth of the day. There is no country on the civilized globe where the people, living under the same environment as those of America, can show so favourable a condition of the teeth of the youth as can this country. This has repeatedly been observed. It was remarked on many occasions by writers during the World War that, when the American soldiers landed in Europe, the most conspicuous difference between them and the soldiers of European countries was the uniform excellence of their teeth. Europeans noticed it and remarked it everywhere our boys went.

This was due only to one thing: the better education of the American people as to the significance and care of the teeth, and the better attention to the patient by the dentists of America. This is said in no spirit of provincial boastfulness, nor to arrogate to American dentists any superior virtue or skill over those of other lands; but the fact stands out in all insistence and has been so generally noted that it cannot be gainsaid. Walk the streets of an average American city to-day, and note the teeth of the people. It is rare to find individuals toothless in the ordinary walks of life; nor is it common even to see people with discoloured or neglected teeth among the American population. And the proportion of artificial to natural teeth was gradually assuming a diminishing pro rata until this recent senseless craze and rage against the natural teeth swept the medical and dental professions off their teeth, and resulted in the slaughter of countless thousands of useful and altogether harmless natural teeth. This is not the place to enter on a discussion of this question, but when the final chapter is some day written on the recent tendencies of medicine and dentistry in their attitude toward the subject of focal infection in its relation to pulpless teeth, it will record one of the saddest experiences of our professional history, and one for which we shall perforce be led to blush.

If it is true, then, that the teeth of the American people are to-day in better condition than the teeth of the people of other civilized countries, it cannot be attributed to our modes of

living. We are told constantly that our modes of living are very bad and this would seem to be borne out by the fact that there is as great an incidence to dental decay as there ever was, at least with the rank and file of the people. The reason, as has been said, is due to the care given the teeth of our people by the dental profession.

It is true that we may see in these mouths of the multitude some very appalling specimens of the dental art. We may see gold crowns on incisors reflecting back the gleams of the electric street-lights; we may see all the canons of art violated with the utmost abandon, and we may recoil a bit when we see it; but we must remember this, that, bad as it is, it at least gives evidence that some attempt is being made to combat the ravages of disease, and that a glaring bit of gold is preferable in appearance to a decayed and snagly tooth.

One thing about the incidence of caries of the teeth may be mentioned parenthetically. While, as previously remarked, the incidence may be as great with the rank and file of the people, it is undeniable that there is a reduced incidence among a certain class. With people who are seriously studying better modes of living, who are giving intelligent attention to diet and to the principles of hygiene, there is a pronounced, and, in some cases, almost a spectacular, reduction in the tendency to decay of the teeth. We note this particularly among the children of some of our families in which greater intelligence is used in the rearing of children and expectant mothers live a more rational life. In many of these cases, we see the children retain their deciduous teeth without a blemish till they drop out in the natural order of things, and are succeeded by permanent teeth in equally good condition. All these cases need is a periodical dental inspection and so-called prophylaxis to detect any possible development of trouble and check it at once. It will doubtless be stated that these cases are rare, but there is no question that they are rapidly on the increase among the class of people mentioned, and they give to us the most tangible glimpse of what the future holds in the way of preventing dental disease.

But, in considering the question as to what the profession owes to the public, it is quite natural to have in mind the obligation due to the poor by dentists in the way of free service. This, of course, relates particularly to the care of the children in our schools and various charitable institutions; in short, the care of the dependents of our nation. And, in this very laud-

able work, our profession must reckon with its duty in no uncertain terms. We must take our place valiantly alongside our medical brothers in every worthy effort to mitigate the evils of our less fortunate fellowman. We must give of our time—in reasonable amount—to philanthropic work, whether at the chair in our own office, or at public clinics, or in lectures and other educational effort. Every dentist must be made to feel that he has a very important function as a public servant, and that he must be ready at all times to co-operate with other agencies in any movement having for its object the betterment of the masses.

This does not imply that a dentist is called on to leave his office and give as much of his time to operating in public clinics as a medical man does. The cases are different. The office hours of a physician are never so long as are those of a dentist, and the former can more readily arrange for clinic hours without sacrifice than can the latter. Not only this: the physician is benefited by his association with a public clinic in a way that the dentist never is. The clinical experience is, of course, valuable to both, but, in the case of the physician, there is a connection which later brings practice to his office in a way that it never does to the dentist. On account of the hardship of the dentist, no public dental clinic can ever be maintained for any length of time on volunteer service. It has been tried time after time, but has never resulted in permanent success. And this is not due to a lack of philanthropic spirit on the part of dentists, but to the fact that the nature of the work is such that it makes too great a sacrifice of time and effort for any man to follow it who has to earn his living. But dentists must be willing to sacrifice a part of their time; and this is particularly true in the beginning of any public dental clinic. Movements of this kind must first be fostered either wholly by the profession, or at least by private enterprise, and dentists must stand in the breach till the movement has demonstrated its value.

Until very recently, it was difficult to impress our public officials with the necessity of doing dental work for dependent children. In the past, in almost every instance, if a clinic was started in a school or any public institution, it was necessary to support it by private enterprise. Not till public opinion had forced our officials to the act did they ever appropriate public funds for this purpose, and probably this is not to be wondered at, in view of the ready criticism meted out to officials for

public expenditures. But some of us who have been interested in the work have not been able to escape the feeling that, in too many instances, our officials have been supinely purblind in denying aid to a movement which is so manifestly for the welfare of the people as this, while they made appropriations for things of questionable character. The more one has to do with philanthropic efforts of this kind, the more one is impressed with the fact that, while we are sometimes prone to boast of our civilization, humanity is yet, after all, something of a mess.

With all the enlightenment which we like to think that we possess, the one outstanding need of the day is this, as in every other effort at improving the race, is better education on the part of the people to be benefited. The best thing that our public clinics do is to educate those who come to them as to the importance of mouth hygiene and the means to maintain it. If the operators in our institutional and industrial dental clinics live up to their highest opportunities, they will spread the gospel of prevention with every patient who comes under their care, and the good they will do in this way will far outweigh all they achieve in the way of operations on the teeth or even in the relief of pain. Of course, the most insistent thing in all of our service is to relieve suffering. This is the first duty of the professional man. But next to this is the necessity of so instructing the patient that future suffering may be avoided. If the operators in our public clinics merely go on day after day, in a routine and perfunctory way, filling and extracting teeth for the people who come to them, they may be doing a creditable and legitimate service, but they are falling far short of their highest function as conservators of the welfare of the people.

And speaking of education, the most profitable education is that which teaches the people to take care of themselves; in other words, teaches our dependents to become independent. In all of our philanthropic work, we are in serious danger of doing a definite damage to those we serve by implanting in their minds the idea that the community or state owes them a living, or at least that part of a living embodied in free professional service. There is a possible demoralization in this, with which we must reckon. The moment any individual beyond the age of mere childhood reaches out the hand to accept something for nothing, that moment there begins in the individual a moral disintegration which may easily lead to

mendicancy or something worse. The great need of the day is to teach individual responsibility—to teach every man that he must be responsible for his own welfare as far as he has the ability to secure it.

And it is just as bad ethics, and just as demoralizing, to have the state perform a service for the individual which the individual should perform for himself, as it is for the individual to do something which properly belongs to the state. I have the firmest conviction that, in this country, we have unwittingly done a definite damage to some of our citizens by too much paternalism. I have said elsewhere, and I repeat, that if I were mayor of a city, I would not permit a beggar on the streets. It is always demoralizing in the highest degree, and any city can better afford to provide some way whereby the needy may be enabled to support themselves than it can to have the sensibilities of the citizens outraged by so blatant a public display of mendicancy, or imposed on and fleeced of their money by a set of imposters, as most of our professional beggars are. It is well known that, in this fair land of ours, no one wants to see the innocent or needy suffer, and this fact has been seized on to promulgate the most outrageous exploitation that has ever been witnessed in any country. It seems difficult for our American people to distinguish between a legitimate and praiseworthy effort to aid the deserving poor, and a species of maudlin sentimentalism which does infinitely more harm than good. No wonder our wise and public-spirited philanthropists are more and more inclined to place a safeguard around their benefactions, and are pursuing policies which some of our sentimentalists are complaining of as being "hard-boiled." Indiscriminate charity has done as much harm as good in this country, and the time has come for people to wake up to this fact.

Of course, this may be said to have little to do with dispensing dental service to the children of the poor; and yet there is a more direct application than those who are not familiar with the work might imagine. It would be well if it were possible to have a rule in all of our public clinics to follow the plan of the Forsyth and Eastman institutions in making a nominal charge for each operation. It would be advisable for the moral effect, if such a thing could be done. That those in charge of the work are beginning to recognize this fact is indicated by a remark quoted by Dr. William R. Wright of Jackson, Miss., as coming from the chairman of the lay educa-

tion committee in a large northern city: "Free work fails to impress the people in the right way." Free work never did impress any one with correct motives, and as far as the other kind are concerned—the leeches, and sponges—it is time they were taught the lesson of their responsibility.

To sum up the duty of our profession to the public in a single sentence: Let the attitude of the dentist to his patients, whether in private practice or in public service, be such as to most surely safeguard not only their physical well-being, but also their moral and mental responsibility. Nothing short of this should be dignified by the name of professional service; and the fulfilment of all of this may well constitute the highest expression of one man's bounden duty to another.

A Layman's View of Preventive Dentistry



GEORGE A. MILLER, writing in the *New York Evening Post*, discusses the subject of Preventive Dentistry and among other things says:

Preventive dentistry hardly exists; but it is a necessity of the future. The 50,000 dentists in the United States could, if properly financed and educated, asserts the writer, do more to insure the health, wealth and happiness of our 115,000,000 people than any other profession. The dentists are the guardians of the health of the people, but neither the people nor many of the dentists realize their importance to the economic welfare of the country. He goes on:

"Preventive dentistry is in its infancy; in fact, it is hardly born as yet. The powers that be in the profession are just beginning to think about the problems.

"Last year, the income of the people of the United States amounted to the enormous total of \$90,000,000,000, and of this amount \$37,530,000,000 was spent for food. This figure is estimated as 41.7 of the entire cost of living.

"If the American people ate \$37,530,000,000 of food last year, then just think what it would mean to them if their teeth, which prepared that food for the action of the chemical reagents in the human body, were in prime condition.

"The health measures of physicians to prevent disease might be almost eliminated if the teeth of the nation were kept in perfect condition from childhood on for a generation or two.

"Dentists have to do with the machinery that prepares the

food for digestion. If the grinding machinery of a flour-mill is not in order, the flour is too coarse, and when mixed with the other ingredients that go to make up a loaf of bread, the bread is not of proper quality. In like manner, if the teeth, which are the grinding machines of the human body, are not in proper condition, the food is presented to the digestive juices of the stomach and intestine in a lumpy, coarse condition, and more energy is consumed in its digestion sometimes than it furnishes.

"Economically the losses attendant on bad teeth might be estimated. The diseases of the teeth are well-known causes of rheumatism, neuritis, and many other disorders that have interfered seriously with the health and economic welfare of people."

Prof. William J. Gies of Columbia University is quoted by Mr. Miller as saying, in a recent address, that there are four aspects to dental education: the education of the public and of the prospective dentist, further education of practising dentists, and the education of the physician to an appreciation of the relationship of dentistry to the problems of disease with which he is constantly dealing. To quote further:

"Some dentists have taken up the dream of preventive dentistry and even contracted to keep the teeth of some of their patients in perfect condition for a certified specified sum. They know the teeth of these patients, and in point of fact are able to underwrite perfect teeth for a certain specified premium.

"These patients are required to have their teeth looked over three or four times a year, so that no decay or other trouble could become advanced without proper preventive methods being taken to check it. But these cases are few in number and more or less isolated examples of unusual intelligence on the part of both patient and dentist.

"Whether such a condition could ever be developed for everybody is very problematical. The problem of preventive dentistry is a very live one. Little has been done.

"Accident and health policies are written every day for a very moderate sum to insure people against disability, both partial and complete, due to mishaps and the ravages of certain diseases.

"Perhaps it is no idle dream that when preventive dentistry reaches the advanced position that preventive medicine holds to-day, insurance policies may be obtainable which will underwrite the price of the necessary amount of dental work to maintain an individual's teeth in perfect condition."

Ontario Deputation Requests Government Grants for Public Dental Clinics



DEPUTATION waited upon the Government on Thursday, Jan. 12th, 1928, for the purpose of stressing the necessity of providing Provincial grants to assist the municipalities in financing public dental clinics.

The deputation was received by the Hon. Dr. J. D. Monteith, Provincial Treasurer; Dr. W. J. Bell, Deputy Minister of Health; Dr. Fred. J. Conboy, Director of Dental Services and Dr. Harold Keith Box, Honorary Consultant in Oral Hygiene, Ontario Department of Health.

Mr. Henry C. Scholfield, M.P.P. for St. George Constituency, Toronto, introduced the deputation and pointed out that it, in a very large measure, represented public opinion in Ontario, as the various members were speaking on behalf of the many thousands who were identified with their various organizations.

The chief speaker for the delegation was Dr. Wallace Seccombe, Dean of the Faculty of Dentistry, University of Toronto. Dr. Seccombe outlined the various kinds of services required and named the grant needed in each case. He was ably supported by—

Mr. E. E. Reid of London, President of the London Life Insurance Company and Chairman of the Health Committee of the Canadian Life Insurance Officer's Association.

Mrs. W. J. Stone of Bond Head, President of the Federated Women's Institutes of Ontario.

Dr. H. Agnew, Secretary of the Canadian Medical Association.

Mr. M. A. Campbell of Milton, President, Rural Section of the Ontario School Trustees and Ratepayers' Association.

Mr. A. E. Bryson, Secretary of the Ontario Educational Association.

Dr. W. L. Hutton, Medical Officer of Health for Brantford.

Mr. James Simpson, representing the Trades and Labour Council.

Dr. Roberts, Medical Officer of Health, Hamilton.

ORAL HEALTH for February, 1928

These speakers emphasized the importance of Dentistry in the field of Preventive Medicine, showed the absolute need for the various kinds of services and proved that in many cases these clinics could not be established without Government assistance.

Other members of the deputation were—

Dr. Routley—Secretary of the Ontario Medical Association.

Dr. J. H. McConnell—President of the Toronto Academy of Medicine.

R. H. Cameron, President; A. C. Galbraith, Past President—Ontario Hospital Association.

Mr. Phillips—School Health Section of the Ontario Educational Association.

Dr. Cecil Trotter, Col. Nasmith—Canadian Dental Hygiene Council.

Dr. E. A. Grant—Lions' Club,

Dr. McGuire, Simcoe; Dr. Davidson, Ottawa; Dr. R. G. McLean, Dr. A. D. A. Mason, Dr. W. E. Willmott—Board of Directors of the Royal College of Dental Surgeons.

Rev. Father Minehan, E. B. Daykin, Judge Harkness—Ontario Social Service Council.

Miss Florence Emory—President, Registered Nurses' Association of Ontario.

Mr. C. McLean—Federation for Community Service.

Rabbi Isserman.

Dr. Marty, Mrs. Becker—Home and School Clubs of Ontario.

Dr. Routley—Ontario Red Cross Association.

Mr. Samuel Farmer—President of the Ontario School Trustees and Ratepayer's Association.

W. M. Morris—Secretary of the O.S.T. and R.P. Association.

Mrs. C. W. McMullin—Social Service Presbyterian Church.

Miss Bessie A. Ross—Women Teachers' Association.

Mr. John Firstbrooke.

F. G. Osler.

D. M. Wright of Stratford—Children's Aid Society.

Dr. A. E. Webster, President; Dr. J. A. Bothwell, Toronto; Dr. S. A. Moore, London; Dr. J. C. Devitt, Bowmanville; Dr. T. J. Campbell, Galt; Dr. L. A. Kilburn, Hamilton; Dr. Harold Clark, Toronto; Dr. W. H. Woodrow, Brockville—Board of Governors of the Ontario Dental Association.

Dr. R. J. Reade, Dr. J. C. Livett, Dr. F. C. Husband, Dr. Willard Armstrong—Ontario Oral Hygiene Committee.

Thos. Holgate—Mayor of Bowmanville.

Dr. Gordon Bates—Canadian Social Hygiene Council.

J. P. Moore, K.C.—M.L.A. London North.

Dr. W. B. T. Amy, Dr. Edmund Guest, Dr. Gordon Frawley, Dr. Risdon, Dr. Madill—Toronto Academy of Dentistry.

Dr. L. J. Eancroft, Dr. C. G. Chapin—Toronto Eastern Dental Association.

Geo. W. James—Editor "Statesman", Bowmanville.

Dr. J. J. Lavine—Toronto Hebrew Dental Society.

The deputation asked the Government to arrange for Provincial grants so that—

- (1) Municipalities willing to establish a school dental service will receive an annual grant sufficient to cover the cost of the equipment over a period of ten years.
- (2) In municipalities too small for a regular dental clinic arrangements may be made by the municipality to send the children to the office of a resident dentist who

will do the work for the cost of material and overhead, thus giving his time gratuitously. In such cases, the Government will be asked to make a grant to the municipality equal to $12\frac{1}{2}$ per cent. of the cost of the service.

- (3) Travelling clinics will be organized for the more remote parts of Older Ontario. The municipalities arranging for the clinic will pay the dentist a per diem fee and the Government will make a grant to the municipality equal to $12\frac{1}{2}$ per cent. of the cost of the service.
- (4) Hospital Dental Departments may be established, the Government giving a grant of .10c per operation and the municipality paying at least .15c per operation to assist in covering the cost of the service. The dentists will give their time gratuitously.

The Government was asked to accept responsibility for providing dental treatment for the people in the unorganized parts of the Province and to arrange for travelling dentists to visit the smaller places in these areas.

The desirability of making it easier for workers in industry to secure dental treatment was also presented.

The Hon. Dr. Monteith replying on behalf of the Government complimented the deputation upon the clear and comprehensive manner in which the requests were presented. He stated that the members of the Cabinet appreciated the importance of Dentistry in Public Health and were anxious to do all in their power to improve public dental health. He drew attention to the fact that the finances of the Province are limited and, consequently, the Government had to be careful in regard to expenditure. After stating that the Dental Branch of the Ontario Department of Health was already doing much valuable work, Dr. Monteith promised to bring the message presented by the deputation to the attention of the Government and assured the delegates that it would be received in a most sympathetic manner.

Dr. Arthur W. Ellis, Secretary of the Deputation, thanked Dr. Monteith for the cordial reception given the delegation and stated that he had received a number of telegrams and other messages from prominent citizens who enthusiastically supported the requests presented but found it impossible to be present.

The Toronto Star editorially supported the request of the delegation as follows:

A deputation of prominent citizens from various parts of Ontario has been waiting upon the Ontario Government, seeking assistance in the establishment of school dental clinics. They suggest an annual grant to participating municipalities sufficient to cover the cost of necessary equipment over a period of ten years. In the case of municipalities too small for a regular dental clinic, they propose that the government pay one-eighth of the cost of sending children to a resident dentist who will charge for material and overhead, but give his time for nothing. They also advocate the establishment of hospital dental clinics to which the government would contribute 10 cents per operation and the municipality at least 15 cents, the dentists to give their time gratuitously.

These are fair proposals, but even more pressing is the appeal for government co-operation in providing dental treatment where it is otherwise unobtainable—in the more remote parts of older Ontario and also in the unorganized parts of the province. Travelling clinics will be organized and remote municipalities will be visited on arranging to pay the dentist a per diem fee, the province being asked to reimburse these municipalities to the extent of one-eighth of the cost. In the case of unorganized districts, the province is asked to accept the whole responsibility of arranging for travelling dentists to visit the smaller places.

It is an appeal which should not fall upon deaf ears. At present no government grants whatever are given in connection with dental treatment, but the importance of the work which dental clinics can accomplish is now so widely recognized that government co-operation may reasonably be expected.

VASELINE AS A SEPARATOR IN PLASTER CASTING.—When a model from a plaster impression is needed in a hurry coat the impression with vaseline by rubbing it on the impression with a lock of cotton and carefully wipe off the surface. This fills the pores of the plaster and is absolutely impervious to moisture, and therefore there is no adhesion. It is not advisable for general use, as to some extent it is liable to fill the fine lines of the impression. It is excellent for use on a model when casting on it an articulating model, and also when flasking for a vulcanite denture.—*Dr. W. H. Craft, Coalport, Pa.*

Abstracts from Address of the President of the American Dental Association

DR. HENRY L. BANZAFF.



I AM glad to be able to report an almost unanimous opposition to the movement started by a small minority of our profession to create a new profession, not included in or identical with either conventional medicine or dentistry; namely, stomatology, which, it is their desire, will eventually take over certain of the functions of dentistry as we now understand them. There seems to be a general agreement with Frederick C. Waite of Cleveland that: "Even if the medical profession desire to absorb the dental profession, which it does not, the dentists would not permit it, nor will it be any easier to supersede the dental profession by a new profession. The thing to do is to oppose any diminution of the efficiency of the present dental curriculum and to aid in improving it by bringing to identity with medicine the preliminary professional education."

Dentists everywhere express satisfaction over the increased financial support that has been given a few dental schools. The fact that certain schools have lately been aided by private philanthropy, while others have been more generously supplied with public funds, is encouraging to the profession. And everywhere, now that the Carnegie Foundation's Report has proclaimed dentistry as being deserving of support, the hope is being expressed that such aid will be forthcoming to all worthy schools in generous amounts. During the past five years, philanthropic persons have contributed from their private funds an average of twenty-five million dollars a year for the support of medical schools, and last year the amount was one hundred million dollars. Members of the profession hope that dentistry will soon receive its proportionate share of this support.

* * *

A survey, conducted in March of this year, disclosed the fact that of the seven thousand hospitals and allied institutions in the United States, only six hundred and ninety-five, or one-tenth, provide some form of dental service to their patients, and, in many cases, even this service is nominal and limited in

scope. It is the opinion of many of our members that a nation-wide campaign should be started at once which should not cease until each hospital of any size or consequence in the United States is equipped to give the fullest oral health service to its patients. There are three good reasons for dental service in hospitals. The first is the advantage it offers to the patient, whose dental defects, though contributing to his condition, may not otherwise be detected. The second is the value of hospital training to a dentist or dental intern. The third is the promotion of research, for which certain types of hospitals offer ideal conditions. In certain cases, records may be kept covering a considerable duration of time, during which the various treatments may be compared, and the patient's diet and habits may be noted, controlled and corrected.

Dr. Banzaff's address contained many references to problems of interest to dentistry and may be read in the journal of the A.D.A., where it was published in full.

Reunion—Class of 2T3



THE Secretary of the Graduating Class of 1923, University of Toronto, is anxious to hear from those who are making plans to attend the Reunion. It is now Five Years since we graduated, and at that time we agreed to have a Big Reunion at the Ontario Dental Convention in 1928. Although we have sent out several letters to members of the Committee on Reunion, all have not replied. The success of this Reunion will depend on your individual effort. From such an "Unusual" Class, it is not too much to expect an attendance of two hundred. We hope there is enough of the "Old 2T3 Spirit" to arouse your interest in this Reunion, and that you will make a special effort to be with the Boys that you haven't seen for Five Years. Make definite plans now, and don't pass up the opportunity of renewing old friendships at the Whizzbang Reunion. If you have any bright suggestions in regard to the programme, send them in to the Secretary of the Class—Robert E. Bradley, 86 Bloor St. W., Toronto.

Dominion Dental Council vs. Canadian Dental Association

A. W. FAULKNER, D.D.S., HALIFAX, N.S.



Y attention has been drawn to two articles in the December issue of the *Dominion Dental Journal*, the one entitled "The Function of the Dominion Dental Council", and the other, "Another View-point."

Both, curiously enough, seem to fear that the Canadian Dental Association is in some manner preparing, or has already completed preparations, for usurping the legitimate function of the Dominion Dental Council.

The question raised in the first article is, which body has the right to speak for the profession as a Canadian unit? Unfortunately, neither body as it now exists is representative of the whole profession. The Dominion Dental Council represents but seven provinces out of nine. The Canadian Dental Association, at the present time, is a voluntary organization, and can but legitimately represent that portion of the profession which makes up its membership. Neither can, with authority, represent the whole of the profession in Canada.

The Canadian Dental Association in the past, although doing very valuable work, has suffered considerably in its attendance as the result of the geographical make-up of the Dominion, as pointed out by the writer in the second article. In whatever Province the meetings have been held, whether Ontario, British Columbia, or Nova Scotia, the policy of the organization has been determined by the local association. That this has been detrimental to its ideals is not being argued, but the fact is pointed out that, under these conditions, it is permitted the Province in which the meeting was held to impress its local stamp on any question arising, and have it published in the name of the Canadian Dental Association.

To remedy this condition (as well as to reap other benefits) it is proposed to reorganize the Canadian Dental Constitution along the lines of a House of Delegates. If the various Provinces, as such, accept the scheme of reorganization, they will then appoint delegates to represent them on the Executive

Committee (called Board of Delegates) of the Canadian Dental Association. In this proposed Constitution very radical changes are made, giving the Board of Delegates almost unlimited power and direction over the affairs of the Canadian Dental Association. But, as mentioned before, the Board being made up of representatives from each Province, any action taken by the body might well represent the whole Dominion.

The one fly in the ointment, and pointed out by the writer of the first article, is, that it is proposed to have the membership in the Canadian Dental Association voluntary. If voluntary, it will not represent the profession any more fully than at present; but if the official bodies appoint the delegates, and carry in their total provincial membership, then, provided all the Provinces endorse the scheme, it will become fully representative of all the profession.

Again, with regard to the appointment of delegates, how can they be appointed to represent a Province if selected by a voluntary body? The delegates can only represent the body that appoints them. If it is a provincial body having jurisdiction over all practising dentists in that Province, the delegates may be said to be Provincial delegates, but if the delegates are appointed by a voluntary body, not having jurisdiction over all the practising dentists in that Province, can they be called Provincial Delegates?

It is my contention that if delegates are to truly represent a Province, they should be appointed by the Provincial Official Body, and if appointed by that body, all registrants throughout the Dominion should be given the privilege of membership. The Code of Ethics will weed out the undesirables. If an applicant for membership will not or cannot sign the Code of Ethics the issue is of his own making, but the Canadian Dental Association should give him the opportunity of deciding the matter.

If this arrangement were followed out, we would then have an organization representative of Canadian Dentistry, and constituted to speak as such. It need not conflict with the avowed objects of the Dominion Dental Council, which are as follows:—

- (a) To promote a central organization under the control of the Dental Profession of the Provinces of Canada.

- (b) To erect and maintain a standard of education and ethics for the Dental Profession.
- (c) To conduct examinations and issue certificates of qualification, which certificates shall be accepted without further examination by the Provinces.

In article 2 reference is made to the address given by the President of the Canadian Dental Association last May, in which is found the suggestion that "somehow the destiny of the Dominion Dental Council had become entangled with that of the voluntary Canadian Dental Association."

On re-reading that portion of the President's address dealing with the Dominion Dental Council, it seems to me his argument is, that although there are some persons who think that the Provincial representatives on the Council might well conduct the affairs of the Canadian Dental Association in addition to its own, "it should be borne in mind that membership in the Council obligates an interchange of license, which is not acceptable to all the Provinces." The conclusion to be drawn is, that those Provinces not having membership in the Dominion Dental Council would not be represented in the Canadian Dental Association if the former body conducted the affairs of the latter. He goes further, and suggests that the Dominion Dental Council has "problems and readjustments . . . to make within the next few years, which will be a testing time for it." He suggests that there are many problems confronting the Dominion Dental Council that may threaten its very existence, and tells us that if the Council is to have a future, "will depend on the willingness of the Provinces to co-operate."

I draw from the address, that the President of the Canadian Dental Association reasons that, owing to the fact that the Dominion Dental Council represents but seven out of the nine Provinces, it could not *per se* take over the affairs of the whole dental profession in Canada, and that if such were possible, it would be undesirable, owing to the difficulties confronting it that make its future existence one of instability.

To me it seems that both organizations are desirable and necessary, and I trust that each may work in its own sphere of usefulness, co-operating with and supplementing each other in their distinct activities.

Lt.-Col. W. G. Thompson Honoured



T the annual banquet of the Xi Psi Phi Fraternity held during the National Dental Association Detroit meeting, Lt.-Col. W. G. Thompson of Hamilton was honoured by the presentation of a Supreme Chapter Fraternity pin in recognition of his contributions to Dentistry and the enthusiastic "Zip" spirit which he had exhibited so frequently to visiting members.

The latest issue of the Xi Psi Phi Quarterly contains the following personal sketch of Col. Thompson:

As Lieutenant-Colonel Walter G. Thompson he is known officially. "Tiny Tim," that is what his facetious friends call him, probably because there is nothing tiny about him, but the humours of a paradox must be served. There is nothing tiny about a man who weighs 230 pounds, and is a perfect mine of ceaseless energy, a human dynamo, enthusiastic, impetuous; a relentless foe of all that is dishonest or crooked wherever he finds it, whether it be in his own profession, in public affairs, or in the field of sport. A straight shooter, he knows nothing of the finesse of the vernacular; his bluntness of speech and candid unequivocal expression are his *sui generis*. He knows nothing of dissimulation, and like all men who speak the truth, he never has occasion to recollect what he has said previously on any subject in which he is interested, for the thought spontaneously recurs to him. He retains in a remarkable degree, the buoyancy and enthusiasm of youth. This is shown in every activity in which he is interested.

At the outbreak of the war there was no Canadian Army Dental Corps. Previous to that time, dental operations had been performed during periods at camp. Military dentists were part of the Canadian Army Medical Corps. When war was declared and enlistment began, men by hundreds and thousands presented themselves for enrolment, but while they were anxious to join the army, and were otherwise physically fit, had to be rejected because of the condition of their mouths. Canadian dentists, both military and civilian, soon realized that the hour of their opportunity and responsibility had arrived, and it was their privilege to add to the fighting forces of the empire by making recruits dentally fit. The question of organization became a live issue. Could the military dentists be of more service, and do better work if operating under the

C.A.M.C., or as a separate unit? The preponderance of opinion was in favour of operating under independent establishment and the military authorities concurred in this. When the Canadian Army Medical Corps was organized early in 1915, Dr. Thompson was appointed with the rank of captain. Subsequently, he was made assistant director of dental services of Military District No. 2, comprising the city of Toronto, with the rank of major. He had previously served fifteen years in the militia, five as a private in the ranks and ten years as a military dentist. In this experience, a full and accurate knowledge of military affairs was gained, a factor which helped considerably in making his work such a pronounced success. Into this important work he plunged with characteristic vigour. He insisted from the first in securing proper equipment for his men, rightly contending that without this, the best of work was impossible. By persistently pursuing his purpose, and enjoying the confidence and respect of his military superiors, he was able to impress them with the importance of his objective, and he succeeded in obtaining for the dental corps, equipment almost equal to that in the office of the best man in civilian practice.

On March 3, 1917, members of the dental profession, and friends of the C.A.D.C., Military District No. 2, gathered at Exhibition Camp, Toronto, and presented to Major Thompson a six cylinder McLaughlin-Buick automobile in appreciation of the important national service rendered by the corps. Major-General the Honourable Justice Logie, in closing his remarks made on this occasion, stated that he desired to make public expression of how much he valued the services of the unit, "which does not advertise, but which does such valuable service to the state." Subsequently Dr. Thompson's outstanding services were further recognized by the military authorities, and he was promoted to the rank of lieutenant-colonel.

Any member of the C.A.D.C. will be willing to say that the outstanding single factor in the fine achievements of that military body was the splendid energy, wonderful tenacity and undaunted optimism at all times displayed by Dr. Thompson.

Colonel Thompson graduated from the Royal College of Dental Surgeons of Ontario in 1899, and since that time has been engaged in dental practice in his native city of Hamilton. As a civilian dentist, Dr. Thompson has rendered fine service to the profession. He was president of the Ontario Dental Association in 1925, and since 1923, has been a member of

the Board of Directors of the R.C.D.S., having been recently returned by acclamation for a further two year period. He is at present chairman of the Discipline Committee of the Dental Board, for the province of Ontario. Outside the profession he has taken a prominent part in public life, and is well known throughout the country for his active interest in all forms of athletics.

In the field of amateur sport he has been a conspicuous figure for many years. He is almost a fanatic on the subject of clean sport, and during his régime as manager of the celebrated Tiger Football club of Hamilton, the status of the sterling amateurs who played under him was never challenged. "Play the game and play to win, but above all, play clean." That was Dr. Thompson's exhortation to his players, and in the greater game of life, no man plays it cleaner than he.

A. V. LESTER, *Omicron*, '06.

A Discussion of the Clean Milk Problem*

O illustrate what is meant by "Dirty Milk," it will be interesting to touch briefly on how milk is normally produced for commercial purposes in this country:—

(i) The cows are generally housed in low, badly-ventilated and ill-lighted sheds.

(ii) The floors are frequently made of cobble stones, bricks or even mud, in which the urine tends to collect and stagnate.

(iii) The cows' hindquarters and tail are always plastered with dung.

(iv) No means are provided for the men coming in from the fields to obtain a good wash before milking, let alone any opportunity for cleansing the cows.

Thus, it will be seen how easily the milk becomes contaminated with:

(a) Dirt off the milker's hands.

(b) Fæces and bedding from the tail, flanks and udder.

(c) Even vaginal and uterine discharges.

Added to this such factors as (i) Expectoration put on the hands, to facilitate the act of milking; (ii) dust from exposure;

*A Paper read before Guy's Hospital Physiological Society by Mr. T. W. E. Pugh.

(iii) dirty utensils. The final product is indeed *so-called* milk, but it is milk which is now serving as an almost ideal culture medium for a large and rapidly increasing number of bacteria of all sorts, many of them pathogenic, particularly tubercle bacilli, streptococci and *B. coli*. Added to these are colouring matter of little food value, vegetable detritus, etc., in the form of excrementa bovina, popularly, but not accurately known as "Dark Returns."

The extent of this contamination may be exemplified by the result of the Clean Milk Competition for Kent for 1923. The entrance to this competition was voluntary, and naturally only those farmers entered who had taken some trouble to produce a clean article. The first example of milk¹ sent by one herd (No. 11) contained no less than twenty-one million bacteria per c.c., including many *B. coli*; indeed, the latter were obtained from 1/100,000 of a c.c. of milk in some cases. One must speculate on what the result would be in establishments where no great care is taken. It is not necessary to examine very many samples of milk nor to inspect many farms where milk is produced commercially, to be convinced that these statements are *not* gross exaggerations of the conditions existing in this industry, and, moreover, there is no doubt they will remain unchanged until the danger is more fully appreciated.

Let us contrast with this the deliberate and hygienic measures adopted in clean milk production under the Government's licence and supervision. There are four grades recognized by Milk Special Designation Order of 1923² :—

- (1) Certified (Grade A (Certified) now withdrawn).
- (2) Grade A, Tuberculin Tested.
- (3) Grade A.
- (4) Pasteurized.

The certified rules are mainly:

- (1) A register of all animals must be kept and each animal suitably marked for purposes of identification.
- (2) Every animal must have passed the tuberculin test, and continue to do so every six months.
- (3) The herd must be isolated from all other untested animals.
- (4) The herd must be certified by a veterinary surgeon as free from all diseases which might affect the milk injuriously.
- (5) All milking to be done with dry, clean hands or with the aid of a little petroleum jelly as a lubricant.

(6) Before a license is granted the farm is inspected, and a satisfactory number of points must be obtained, having in mind the general condition of the cow houses.

(7) Milk must be bottled and sealed on the farm immediately after production for delivery to the consumer.

(8) It must have the name of the farm and day of production printed clearly on the cap.

(9) The milk at any time before delivery to the consumer must not contain more than 30,000 bacteria per c.c., and not any *B. coli* in 1/10 c.c.

Grade A, Tuberculin Tested.—This requires, broadly, that the cows should be tested every six months and all reactors removed.

Grade A Milk.—The cows of the herd are examined clinically every three months, and any animal showing evidence of disease which is likely to affect the milk injuriously is isolated and the licensing authority informed. Milk taken at any time before delivery to the consumer must not contain more than 100,000 bacteria per c.c., and no *B. coli* in 1/100 of a c.c.

Pasteurized Milk—

(1) This milk must be retained at a temperature of not less than 145° F. and not more than 150° F. for half an hour. Then cooled to a temperature of 55° F.

(2) It must not be treated twice.

(3) Each vessel shall bear the words "Pasteurized Milk."

(4) Before delivery it shall not contain more than 200,000 bacteria per c.c., with no reservative statement as to the nature of organisms present.

Nonconformity with these specifications renders the producer liable to loss of the license, and a fine of £5 for a first offence and £50 for a second.

The measures necessary to keep the bacterial count below 30,000 per c.c., and with no *B. coli* present, will be best shown by describing the routine practice of a farm producing such milk.

The long hair from the cow's udder, tail and quarters is cut close every month; this assists materially in overcoming the soiling of these parts with fæces, etc., which is very abundant if this precaution is not adopted, and it also helps the cowman by facilitating and rendering more efficient the grooming and washing the cows receive on coming in from the fields. This grooming consists of a thorough curry-combing from

head to foot, followed by a wispings with a wad of damp hay. This procedure removes all dung, mud and loose hair from their coats and is apparently appreciated by the animals, and probably contributes to their improved health.

After this stage the cows are removed to another shed, which has previously been hosed to lay the dust. The udders are washed with plenty of cold water. In several establishments the hose is turned on to the udder without any untoward symptoms developing. Whatever the method adopted, a thorough drying of the udders with a clean cloth is essential. The milkers wash their hands, put on white smocks and caps, and then milk into domed sterilised pails.

Immediately on completion of the milking of each cow they remove the milk, weigh it and record the yield, and place it in the cooler forthwith. Efficient cooling is very important, as any organisms present in the milk, being in a suitable pabulum for growth, would multiply rapidly if left at body temperature. As the milk completes the circuit of the cooler it is run into sterilised milk bottles and sealed down with sterilised plugs.

The thorough washing and sterilising of the utensils and milk bottles is a matter that receives considerable care. All utensils are placed in a tank of running water, while the milkers have their breakfast or tea, as the case may be. On returning each article is wiped under the tap, often with the aid of a mechanical brush, and passed on to the next hand, who washes them with hot water and soda. They are again rinsed by a third hand under a pressure tap and put into the rack. When everything has been washed they are all placed in the steriliser upside down and the steam turned on. The temperature is raised and maintained at 212° F. for twenty minutes. The steam is turned off and the whole outfit left in the steriliser until required.

Discussion.—If it can now be granted that the milk, as usually produced in this country, is not the delightfully pure fluid that one is led to believe by the advertisements posted everywhere—liquid sunlight, etc.—then it will be interesting to discuss what effects the flora of this biological—almost tempted to say Zoological—product is likely to bring about after consumption. For convenience of description these effects will be considered under three heads:

- (1) Specific diseases, other than T.B.
- (2) Infant diarrhoea and toxæmia.

(3) Tuberculosis.

Specific Diseases other than T.B.—One only needs to mention the fact of milk acting as a passive carrier of diseases—scarlet fever, diphtheria and typhoid, as was instanced in the Chorley outbreak of para-typhoid fever³—to appreciate that, apart from any steps the Medical Officer of Health may take, the very hygienic principles incumbent on producing clean milk would also lessen the risk of recurrence of so serious an outbreak as that cited.

Infant Diarrhœa.—Hutchinson⁴, referring to the condition, says: "I cannot exaggerate the importance of this disease as a scourge of infant life. Recent returns of the Registrar-General show that out of 22,000 deaths from diarrhœa, taking the country all over, 17,000 occurred in children under one year old." This author then goes on to state that he considers there are three main predisposing factors in this disease:

"(1) The sterilising power of the child's stomach is very small; it secretes but little hydrochloric acid, and organisms swallowed with the food stand a good chance of running the gauntlet of the stomach and setting up irritation in the intestines.

"(2) The children are fed mainly upon milk, which is anything but a germ-free fluid.

"(3) That infants are particularly liable to chill.

"Against these you must fight if you wish to prevent it (diarrhœa)."

It is well known that bacteriologists have not found any micro-organism which is so constantly present that we may be justified in looking upon it as the specific cause of this disease. One must, therefore, look for some error in the diet or hygiene of the infant. What more blatant defect in hygiene could one have than this condition of the milk?

In the natural state the child is breast-fed, and, if the mother is moderately careful, the infant has an almost germ-free diet. Granting that under the present conditions it is not always possible to breast-feed, it would appear to the author a curious change of thought to advise that this child be put on a diet laden with organisms, when by a little care the natural conditions can be imitated fairly closely. Considering also the precarious position of an infant at this early stage of its existence, is it astonishing to find that its natural resistance is liable to break down when fed on a fluid teeming with organisms and their products, obtained directly from another

animal. Yet the view has been expressed by at least one authority: "That it was the very presence of this miscellaneous collection of organisms, stimulating the body mechanism for the production of antibodies in the individual, that fitted him for the fight that was to come."

Allowing that such is the case *with those that survive*, do the advocates of this line of thought seriously consider that the administration, before Nature has prepared the individual for such a fight, of actual living cultures of pathogenic organisms can possibly be justified on biological physiological or any other grounds?

Tuberculosis.—It is generally accepted, since the Royal Commission, that there are two varieties of tubercle bacilli pathogenic to man, namely: (a) The human, (b) the bovine. The apparent relative frequency of either class varies considerably with the authority quoted. But, after a careful examination of a number of reports, the author has been led to believe that at least 30% of fatal cases in children under two years of age are due to the bovine type. John Guy's⁵ opinion of the danger of the bovine type is expressed in his statement:

"Another great means of distribution of T.B. is the milk of tuberculous cows. The extent of this peril may be indicated when it is stated that at least 40% of milch cows in Great Britain are infected with T.B., and that a great number of those supply milk containing tubercle bacilli. The germ may gain entrance to the milk by the udder of the cow being the site of a T.B. lesion or because the tuberculous process is disseminated through the body, and the bacilli circulating in the blood are excreted by the milk glands. Again, the bacilli may be discharged from T.B. ulcers in the intestines and the infected fæces gain entrance to the milk. To those familiar with conditions under which many of our cows are kept, and with the milking methods commonly in use, it will be at once appreciated how easy it is for infected excreta to gain entrance to the milking pail. Thus, to a very great degree, the prevention of the distribution of T.B. is to be secured by the control of the consumptive patient—the tuberculous cow."

Sir Henry Gauvain,⁶ speaking at the National Association for the Prevention of Tuberculosis, at Birmingham, said:

"A number of very young children, at an age when bovine infection is especially prone to occur, die of either primary tubercular meningitis or rapidly disseminated tubercle. The percentage of bovine infection of these has not been worked

out on a sufficiently large number of cases to afford reliable data, but it is reasonable to assume they must be *very high*."

From these quotations it will be gathered that tuberculosis of the bovine type is a real and not a hypothetical danger, especially in the case of infants, for it is now generally accepted that the younger the child infected the greater chance the disease has of progressing to a surgical, or even a *fatal*, conclusion. It would appear, therefore, that one must exercise particular care to avoid infection at this period. Consequently, it must be admitted to be unfortunate that it is impossible to state the precise doses, if any, of T.B. which is administered at any one time, but as the milk immunization scheme is not founded on dosage of any exactitude it is perhaps impudent for one to attempt standardization. It would seem generally understood, however, that two or three glasses of a fully-developed culture are intended to be taken daily over some years. In the case of weakly persons, especially those suffering from influenza, and children this amount should be increased, and if the patient has already contracted T.B. the largest possible amounts should be administered—apparently in homeopathic hopefulness.

Yet one learns with astonishment from certain quarters that clean milk precautions are unnecessary because it is stated that "a mild attack of the bovine type would cause anti-bodies to be formed, which would render the individual immune to subsequent attacks." One would like to ask: Do the advocates of this line of thought consider that an infant is at the best possible period to deal with such an attack? Have they any reason to believe that a child, which has recovered from an attack of the bovine type, later becomes immune to the human type? Cases of infection of both types in the same individual have been recorded, which would tend to disprove this hypothesis. But unless such dual immunity *does* exist, there would be no point in protecting the individual, at some considerable risk, against the bovine type if the source of infection, T.B. milk, were totally eliminated from the diet.

If, however, this immunity is to be obtained at all costs, surely the more rational method would be to obtain it by a series of carefully graduated doses of attenuated or dead bacilli, as has been done in France by Calmette,⁷ and would certainly be of greater pecuniary benefit to the practitioner. The whole situation is summed up admirably by Guy⁸ when he says: "The damage done by the bovine bacillus is *real*; its protective value problematical."

It would appear then, to the author, absolutely criminal for anyone with a scientific training to defend the production of a possible but dubious immunity by giving at irregular intervals an unknown dose of specific bacilli, plus an equally indefinite, but more constant, dose of a large number of other pathogenic organisms at a particularly susceptible period. Is there any other sphere in which so unscientific a procedure has the general approval?

In conclusion, gentlemen, although it is asserted by farmers and other not disinterested people that the lactiferous suspension of living bacilli obtained by a judicious use of excrementa bovina has a very high value, it has to be admitted that there are a certain number of untimely deaths during the process of immunization. This is perhaps due to the use of an heterologus species such as *bos*, and better results might be obtained by the use of excrementa humana, which is everywhere obtainable. This has indeed been used to a limited extent by the Hakims in India, but figures are lacking which would enable us to judge of the result. It is, however, a matter which should receive further attention from those competent to deal with such subjects.

With reference to T.B., the author would emphasize the fact that it is not an impracticable proposition to free this country from bovine tuberculosis and remove the risk of infection and this cause of death to many thousands of infants yearly; for the mechanism is already in the hands of the veterinary profession,⁹ but he would also emphasize the fact that this happy prospect is not likely to be realized in this country unless, and until, the medical profession appreciate the *appalling* conditions under which much of our milk is produced, and interests itself sufficiently in the question to educate the layman to be willing to provide the necessary sinews.

REFERENCES.

1. Report: "Kent Education Committee" in conjunction with "The Kent Milk Recording Society," 1923.
2. Statutory Rules and Orders. 1923. No. 601. also Memo 77/Foods.
3. Report on Public Health and Medical Subjects. No. 30.
4. Lectures on Diseases of Children. Robert Hutchison. P. 58. 59.
5. John Guy. Pulmonary Tuberculosis, Diagnosis and Treatment. P. 33/4.
6. Sir Henry Gauvain. Report: National Association Prevention T.B.
7. Franco-British Medical Review. Oct., 1926. Vol., 3. P. I.
8. John Guy. Pulmonary Tuberculosis, Diagnosis and Treatment. P. 38.
9. Bangs Method of Elimination.
Also "B.M.J." "Lancet," "Veterinary Record," "Journal of Comparative Pathology," "Hewlett's Bacteriology," etc.

Systemic Aspects of Periodontal Disease*

HERMAN D. OSGOOD, M.D., BOSTON, MASSACHUSETTS.

N presenting a paper having to do with the systemic aspects of periodontal disease, I fully appreciate that the recent dental literature already contains many excellent presentations of the subject. My purpose is to present some of the facts which must be evident to any observant physician who has had the opportunity to make a careful systemic analysis of cases involving periodontal conditions; and to correlate the various factors in the systemic etiology in the light of modern observation and experience.

Various local and systemic theories as to etiology are to be found, but, on the whole, writers on the subject seem to agree that the disease is a complex one in which both local and systemic factors play a part.

It is but natural for the trained periodontist to minimize the systemic etiology and to attribute the disease almost entirely to local conditions such as ill-fitting crowns, overhanging fillings, faulty contact points, the chemical action, accumulated food débris and, especially, the trauma produced by unbalanced occlusal strain; and to make the claim that, by proper correction of these defects, followed by adequate prophylaxis, a permanent cure can be obtained. Unquestionably, brilliant results have been obtained by skilled periodontists who confine themselves solely to local treatment; but, in too many instances, these results are only temporary, and the passage of a relatively short interval of time often shows a relapse approaching the original condition. That, in many such instances, a relapse is due to failure or inability on the part of a patient to continue the prophylactic régime is undoubtedly true; but why is it that some patients must spend twenty minutes a day in brushing and scouring if they wish to retain healthy gums, and others, with many or all of the local conditions above cited, apparently get along with little or no prophylactic attention?

The fact that local conditions alone are insufficient to account for the etiology of the disease must be obvious to the observant dentist with a large clinical experience. He must

*Read before the Section on Exodontia, Anaesthesia and Roentgenology at the Seventh International Dental Congress, and published by courtesy of the Journal of the American Dental Association.

have seen many patients with traumatic occlusion, lack of contact points, poorly fitting crown and bridge work, calculus deposits and filthy mouths, who yet show no evidence of periodontal disease. He also must have seen many other patients whose mouths, from a standpoint of dental reconstruction, are in perfect condition, and yet who experience severe gingivitis or pyorrhœa from relatively trivial causes.

Periodontal disease, therefore, cannot be regarded as a pathologic entity which can be attributed to any one cause. It is rather a local manifestation or symptom resulting from the interaction of a number of conditions which may be either local or systemic, or both. The work of recent investigators would seem to indicate that we have to deal with two distinct conditions, one a gingivitis due to local irritation alone; another, a periodontoclasia or softening of the alveolar bone due to a deficiency or debilitating disease; and that the cases of greatest severity are those in which such predisposing systemic causes so lower the resistance of the alveolar tissues as to favour the rapid extension of the pathologic process excited by local trauma, stress or strain.

Two illustrative cases of common occurrence will emphasize these points. Consider first the patient whose gums and alveolar bone are in good condition, but at certain places in whose mouth there exists one or more local causes of irritation. Clinical examination will show that the inflammatory changes in the gingiva are located solely about these points of irritation and do not occur elsewhere in the mouth. Roentgen-ray films of such a case will further show normal alveolar bone with the exception of marginal pericementitis or local pockets which are limited to and sharply circumscribed about the points of irritation, traumatic occlusion or overhanging filling as the case may be. Here, then, we have a condition primarily due to local irritation alone, and the clearing up of the defects should be followed by complete recovery if the pockets and denudation of the root have not progressed too far.

Consider, now, another type of case in which the gums are blue and spongy, bleed easily on pressure and may even erude a little serum or pus at the gingival margin. Even in the absence of local causes of irritation, the roentgen-ray film will show a much decalcified alveolar bone with respect to both the lime content as evidenced by the density, and also the character of the trabecular markings; so much so, in fact, that the white line of the lamina dura will stand out by contrast, a

picture that is comparable roentgenographically with that of lime salt resorption as seen under similar conditions in other bones of the body. Here, then, we have primarily the result of a systemic condition. In such cases, there may be no local irritations to result in gingivitis, marginal pericementitis or pockets; but the alveolus may be so soft that the teeth can be freely moved by the finger. In the latter instance, correction of the diet and habits of living in many such cases will, over a reasonable period, show a definite tightening of the teeth, and roentgen-ray examination at the later date will show alveolar bone more nearly approaching the normal structure and density.

That debilitating diseases such as syphilis, chronic nephritis, tuberculosis and diabetes plan an important part in lowering the resistance of the alveolus is, of course, obvious, but these conditions alone are not sufficient to account for the wide prevalence of periodontal disease.

That systemic toxemias, defective diet or deficiency of calcium can produce periodontal lesions, and corrective measures can bring about repair is evident from a review of the recent literature. The writings of Talbot, Homberger, Bunting, Burnett and Spalding all stress the importance in etiology of diets deficient in organic calcium. Howe, by feeding diets deficient in vitamine C (antiscorbutic) and calcium, has been able to produce in monkeys every stage of periodontal disease, from slight gingival redness to complete destruction of the supporting tissues. Heavy tartar deposits were formed indicating that the calcium was not being properly metabolized but was being excreted into the mouth. This cleared up on correction of the diet. McCollum and Grieves were able to produce periodontal lesions in rats by defective diets. The production of such typical lesions in experimental animals seems to prove that the primary condition which renders the gums and alveolar tissues susceptible to traumatic occlusion is an abnormal metabolism due to a protracted poor diet. That the modern diet of civilized races is deficient in vitamins, calcium and roughage has long been recognized. We eat too little fresh vegetables, too much meat, refined cereals and contents of tin cans. Vitamins are readily destroyed by heating, drying or long keeping, and the calcium content of whole grain wheat is almost completely eliminated in milling and refining.

Overeating and underexercise also play a very important part. G. V. Black was able to produce excessive tartar

deposits about the teeth simply by over-eating, and Broderick has given us a very interesting study in the relations of exercise to the carbon dioxid exchange and its effect on the hydrogenion concentration in blood, from which he deduces that abnormal calcium metabolism as seen in periodontal disease can be fully as much the result of insufficient exercise and faulty elimination as deficiency in the diet itself. Gibbs, in his paper on acidosis, comes to a similar conclusion. Tyree approaches the subject from a different angle in reporting 165 cases of gastric hyperacidity, 54 per cent. of which showed advanced pyorrhœa, and 24 per cent. moderate lesions. He notes that, in each instance, the gastric disorder antedated the onset of periodontal disease. The diet of these patients had been habitually low in calcium, as is the rule in such cases. He also states, which some may question, that a number of these cases showed a complete clearing up of the periodontal lesions under systemic treatment.

From the foregoing, it might appear that the deficiencies of our modern diet are the essential systemic cause of lowered alveolar resistance through decalcification or softening, and that these deficiencies produce conditions favourable to the onset of periodontal disease.

If this were the whole story, it should be possible by dietary control to supply the chemical materials required and thereby eliminate the systemic side of the periodontal problem. Clinical results in this respect, however, have, as might be expected, been disappointing, first, because it is practically impossible to get the average individual to stick to such a modified diet, and, secondly, because other equally important factors must be taken into consideration. The work which has been done on rickets in children, for example, has proved that the administration of calcium alone is not sufficient. The calcium must be in an assimilable form, and the organism must be in a position to utilize it. Here the ultraviolet rays of the sun play a most important part. They are just as essential to the animal metabolism as they are to the plant in enabling the latter to utilize its chlorophyl. The adult sedentary worker gets far too little sunlight in his daily activities, but he needs it just as much as the child with rickets. It is remarkable how quickly these children pick up when fresh air and ultraviolet rays are added to their regimen.

The small intestine is the seat of calcium absorption. As Howe points out, the absorption of food elements depends first

on perfect digestion, and, secondly, on a clean active absorbing surface. The roughage or cellulose residue from vegetable diets lightens the food mass, stimulates peristalsis and keeps the absorbing surface clean. Monkeys which he fed on a concentrated diet of pasty consistency were found to have a flaccid, semi-atrophied intestinal wall covered with mucus and slime; whereas, those to whose diet filter paper (cellulose) was added were found to have clean healthy intestinal absorbing surfaces.

That the same is true of the human organism cannot for a moment be doubted.

In our own work, consisting in careful health surveys of below par individuals suffering from no organic disease, we have been impressed by the frequency of the coexistence of periodontal disease in the mouth with alimentary tract stagnation, particularly in the cecum and terminal ileum.

This, in my opinion, is the most important factor that we have yet considered. The human organism is an engine which not only requires suitable fuel for its activities, but also must eliminate the waste. If the high meat protein content which we find in our average diet is not used up in the body economy, it decomposes into toxins, which are reabsorbed in the cecum, producing a below par state, and lowered vitality and resistance, as a forerunner to definite organic disease.

Is it not possible that the coexistence of these two conditions is more than a coincidence? and that, in autointoxication and protein acid ash, we may have another factor of equal importance with dietary deficiency? If, in these days of lack of exercise and sedentary living, we cannot keep the bowel tone and elimination up to normal, let us at least eliminate the excess of meat protein and its attendant decomposition toxins.

Before leaving this subject of colon dysfunction, let me emphasize the fact that a daily bowel evacuation does not mean that the individual is not "constipated." The roentgen ray or charcoal test may show that the evacuation was only a small part of what it should have been, or again it may have been several days behind normal schedule.

If, therefore, we are to obtain the best results for our patients, the physician and periodontist must work in close co-operation. The excellent results which the periodontist obtains by local treatment alone even in apparently unfavourable cases should not be overlooked, but the periodontist who believes that he can permanently cure all cases by local treat-

ment will, in many instances, fail of the ultimate that he might obtain and may find his excellent work undone by the systemic factors which he has minimized.

Cases should be studied from both local and systemic sides. It will be found, as Quinby has stated, that they will fall into four main groups.

1. Normal alveolar structure with no local trauma = no periodontal disease.

2. Normal alveolar structure with local trauma = gingivitis, marginal pericementitis or pockets, localized to the site of irritation.

3. Defective alveolar structure without local trauma = softened alveolus, without gingivitis, marginal pericementitis or pockets.

4. Defective alveolar structure with local trauma = the most advanced cases and poorest prognosis.

It is with the last two groups, and they are in the majority, that this paper has to deal.

One cannot expect the dentist to be an expert in laboratory methods of medical diagnoses, but he should unquestionably be sufficiently well trained in physical examination and history taking to determine when the patient's condition is such as to warrant the physician's attention. Since so much of dental literature and research deal with the problem of diet, it might also be within his province to advise the patient as to diet in the absence of organic disease, recommending leafy vegetables, milk, whole grain wheats, fresh fruits, etc., in place of a diet consisting largely of meat, white potato, prepared cereals and canned goods.

SUMMARY.

1. Periodontal disease is essentially a disease of civilized races.

2. It is due either to local or systemic factors or a combination of the two.

3. In those types primarily of local origin, the pathologic process is limited to the point of irritation.

4. In those types primarily of systemic origin, there is a decalcification or rarefying osteitis of the alveolar tissues, upon which the results of local irritation are superimposed.

5. The disease can be produced artificially in experimental animals by feeding a diet deficient in vitamine C and calcium.

6. The modern civilized diet is deficient in vitamins, calcium and roughage.

7. The calcium metabolism is not only dependent on dietary factors, but also on sunlight, exercise and general body health.

8. The absorption of toxins through alimentary tract stagnation, especially on a high protein diet, not only produces acidosis and autointoxication, but also lowers the tissue resistance, favouring the spread of infection when given access through local trauma.

9. Excellent results can be obtained by local treatment alone as long as the prophylactic régime is continued. But many disappointments can be avoided and much success can be obtained if the periodontist will co-operate with the physician in restoring defective body function as well as correcting traumatic occlusion and eliminating local sources of irritation to the gums.

Principles Relating to Dental Health



THE American Society of Orthodontists subscribe to the following affirmations of items and principles relating to dental health.

Whereas, The correction of malocclusion is primarily a health measure; and

Whereas, The only solution of dental health, both locally and in its relation to general health, lies in the prevention of oral disease; and

Whereas, Dental prevention is effective in inverse ratio to the age of the patient, children's dentistry is the logical field of preventive measures; and

Whereas, The orthodontist needs the complete co-operation of the dentist to insure and maintain dental health before and during orthodontic procedure; and

Whereas, The principles of prevention, listed herewith, have been endorsed by fifteen state dental conventions, three national dental associations, and the Federation Dentaire Internationale; namely:

Proper attention to initial defects,

Particular care and attention to all pits, fissures and grooves before caries appears,

No cavity is too small to fill,

The deciduous teeth should have the same care and attention as the permanent ones, as their maintenance in health is essential to the proper development of adult occlusion; and

Whereas, Disregard of these principles and practices of accepted dental teachings constitutes a transgression of professional obligation to the patient and a serious handicap to orthodontic procedure; therefore be it

RESOLVED, That this declaration of policy is the unanimous expression of the belief of this organization, whose members are called upon to uphold it in all their relations with the dental profession and the public; and be it further

RESOLVED, That these resolutions should be displayed in each orthodontic office and a copy sent to the dentist responsible for the care of the patient immediately on the acceptance of a case; and be it further

RESOLVED, That this action be given publicity in professional journals and copies sent to the secretaries of various state, national and international dental organizations and to dental school associations. [*The above resolutions were adopted by The American Society of Orthodontists in annual session, May 2 to 5, 1927, Chicago, Illinois.*]

The Orthodontic Club of Toronto



MEETING was held in the Club Room of The Physicians' and Surgeons' Building on December 6th, 1927, at which all those specializing in Orthodontia in Toronto were present. It was decided to form a Study Club, and a committee was appointed to bring in a tentative constitution and suggestions for study and research.

A second meeting was held on January 17th. The above name and a constitution were adopted, twelve charter members named, and the following officers were elected:—Pres., Dr. H. G. Bean, Vice-Pres., Dr. C. A. Kennedy; Sec.-Treas., Dr. S. S. Crouch.

A number of suggestions for reasearch and discussion were presented and each member was asked to take some definite part in this work.

At least four regular meetings will be held per annum.

PUBLIC EDUCATION

DENTAL HEALTH

"The public has decided it wants health talk and means to get it! The lay press is the most powerful medium of instruction for the public in health matters. We must do our best to secure its co-operation!"—Sir Thomas Horder.

IN this department each month will be published short articles suitable for use in the public press. The material has been authorized by the Oral Hygiene Committee of the Ontario Dental Association, and members of the profession may feel free to arrange for its publication in the local papers or magazines.

SEPTIC TEETH.



YOU are hearing much these days about focal infections, particularly relating to diseased or septic teeth.

Now, focal infection is what?

An authority states—"An infection by some disease-producing organism at some point from which poisonous matter or disease germs are constantly being fed into the body fluids; and by far the greater number of focal infections," he adds, "are found associated with the teeth."

Then as to sources of infection about the teeth themselves:

We have first diseased pulps, which offer ideal conditions of heat and moisture for bacterial growth—these organisms and their poisons are being fed continually into the blood stream where such a condition exists.

Next, we have the acute and chronic abscesses of which the diseased pulp is invariably a forerunner; here, pus is present and is either being mixed with the food and swallowed or absorbed directly into the body at large through the blood and lymph streams.

Lastly, there are the so-called "pyorrhœa pockets" where bacteria are harboured free from disturbance by the oral fluids, and under ideal conditions of heat and moisture for propagation and growth.

Having thus gained access, the bacteria and their poisons are free to set up a localized infection in different areas, or to cause a general septic intoxication or poisoning.

Also, it is generally accepted that the absorption of the products of putrefactive material from decayed teeth and dis-

eased gums, tends to lower the resistance of the body to communicable diseases of various kinds.

So it is that affections of the joints, of the heart, kidney, etc., are in many cases attributable to the presence of septic foci around the roots of one or more teeth.

* * *

FACIAL NEURALGIA.



If you have suffered from neuralgia pains you can well sympathise with the distress that called forth from the poet Burns:

“My curse upon thy venom’d stang
That shoots my tortured gums along.”

Neuralgia may be defined as a severe paroxysmal pain in the area of distribution of a nerve or along its course. However, that under discussion is the type proceeding from conditions in and about the teeth.

Perhaps the most common form of facial neuralgia, but, happily, one most readily yielding to treatment, is that resulting from an inflamed pulp. This is, generally, confined locally, and hence is quickly traced to the offending tooth.

On the other hand, the pain may be manifested throughout the whole course of the nerve in its distribution, and those communicating with it, which leads to that condition where a tooth or teeth other than the one involved, seems to ache sympathetically.

There are sources of neuralgia perhaps more obscure than this type; such as a root-end that has been left in, following a difficult extraction, and about which a low grade infection has been set up; deposits about the roots of teeth; and pulp stones or nodules.

But perhaps the most likely cause of an obscure neuralgia is found in a tooth that lies impacted in the bony alveolus, having failed to erupt either from lack of space, or due to some disturbance that has interfered with the process of eruption.

Then, either from pressure upon a nerve, or from a diseased condition engendered through the abnormal position it occupies, a very severe type of neuralgia may result.

In this connection, the third molar or wisdom tooth is the most frequent offender; and nothing less than the removal of the impacted tooth will affect a cure.



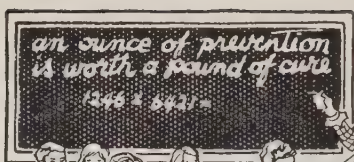
This Department is Edited by
C. A. KENNEDY, D.D.S.,
86 Bloor St. West, Toronto.



DEVITALIZING PULPS.—After you have placed the treatment in the tooth in the usual way and packed gutta-percha or cement around it, are you sure of just where your treatment is, and whether there may not be leakage? The Devito Cups solve the problem. You take one of these cups, place the treatment in it, warm its edges and place it in the cavity. It adheres firmly and a temporary filling may be placed over it without moving it from position.

PYORRHŒA.—Surgery has a definite place in the treatment of true pyorrhœa, but the great majority of cases will yield better and more permanent results with competent root scaling and conservative local treatment. To prove this, I should like to suggest that the following test be made. Let there be several cases taken under treatment, and one-half of the mouth be treated by the conservative measures and the other half with the flap operation. I venture to predict that, conditions being equal, the teeth scaled will present a much more favourable clinical picture, and will be on duty long after the others will have been lost.—A. BERGER, D.D.S., in *Journal of the A.D.A.*

RELATION OF MASTICATION TO DENTAL CARIES.—The rapidity of the progress of dental caries in fissures is in inverse ratio to vigour of the mastication. Vigorous mastication prevents the formation of gelatinous plaques on all accessible surfaces; decay can therefore not take place in these areas. In the depths of the minute fissures and grooves plaques do form, but if the patient chews vigorously these plaques will be frequently compressed, thus forcing out the accumulation of lactic acid and allowing the alkaline saliva to neutralize it. Thorough and determined chewing of food with resistant fibres is beneficial for all patients because of its cleansing action and the resulting stimulation of the local circulation.—*Dental Digest.*



School Dentistry

This Department is Edited by

EDMUND A. GRANT, D.D.S.

Director of Dental Services—Department Public Health, City Hall, Toronto.

We are anxious to receive for publication in this Department reports of work carried on in School Dental Centres anywhere in Canada. Papers on any phase of Pedodontia would also be welcome.—E.A.G.

The Prevention of Dental Caries in Children*

SIR FRANK COLYER, K.B.E., F.R.C.S.



WHEN Dr. Fenton, the Recording Secretary of this Section extended to me an invitation to address you on a subject of dental interest, I chose that of the prevention of caries in children. My choice fell on this aspect of dental disease partly because it seemed to me that while great efforts are being made by the school authorities to deal with the teeth of the children committed to their care, insufficient attention is being given to the child of pre-school age. Speaking as a dental practitioner, I have no hesitation in stating that the main damage to the teeth of the school child and adult is in a large measure attributable to neglect in the pre-school days, and that if we could, during these early years of life, ensure a sound set of teeth, much of the trouble that has now to be dealt with in later life would never exist. If we are to have a nation with healthy mouths, we must concentrate our attention on the infant—and by that term I mean the pre-school child.

First, a few words on the magnitude of the task with which we are confronted. It is estimated that the number of children in England and Wales under 12 years of age is:—

- (a) Under 5 years 3,404,000
- (b) Between 5 and 12 years 4,537,000

I am informed that of the group (b), roughly 90 per cent. attend the Public Elementary and Secondary Schools.

Accepting these figures, we can estimate the number of children in group (a) who will attend the public elementary

* Extract from the Journal of the Royal Sanitary Institute, November, 1927.

schools at about a little over three millions (3,063,600).

In the year 1925, 1,877,400 children of school age, group (b) were examined, and 1,393,919 were found with dental defects—roughly, 74 per cent. These figures relate to the public elementary schools, and from these figures we obtain an estimate of the total number showing caries, viz., 74 per cent. of 4,537,000, or 3,357,380.

I have separated the children attending the public elementary schools from those educated in private schools because the teeth of the latter class are probably in a better condition owing to more regular dental supervision and attention to oral cleanliness.

To arrive at the number of children about the age of five years showing dental defects, I take the figures published in the Report of the School Medical Officer of the London County Council for 1925, referring to the examination of "entrant infants," as five years is the commencement of the school age. In 1925, 82,209 boys and girls were examined, with the following results:—

	Sound	Slight Caries	Severe Caries
Boys	54.3	31.4	14.3
Girls	53.4	32.9	13.7

The caries was termed "severe" where four or more teeth were decayed. The percentage of children showing caries is roughly 46, and this must be considered the minimum figure. The inspections are carried out by the Medical Officers, and it is only reasonable to assume that cases of early caries, which would be discovered by probe and mirror, go unrecorded.

If the percentage 46 is applied to the whole of the pre-school children (State Schools) we arrive at the figure 1,408,256.

No claim is made that these figures are correct, but I am sure they do not over-estimate the poor condition of the teeth of the pre-school child.

The pathology of caries of the teeth may be concisely described as follows:—Carbohydrate foodstuffs in solid form or in solution lodge on or between the teeth; by the agency of micro-organisms the food undergoes fermentation and lactic acid is formed, and possibly other organic acids in minute quantities. The acids decalcify first the enamel and later the dentine, the organic matter that remains being split up by

the action of micro-organisms. This, briefly, is the chemico-parasitic theory as propounded by Miller, and is the one generally accepted by dental pathologists.

The cause of caries, then, is the lodgment of carbohydrate foods on the teeth. But carbohydrate food has formed part of the diet of man for many generations—yet it is only within the last 100 years that dental caries has become so prevalent. To what cause can we attribute this great increase in the incidence of the disease? The answer, I think, is to be found in the nature and manner of preparation of these food-stuffs. Dr. Sim Wallace, several years since, drew attention to the fact that the preparation of foodstuffs by modern methods rids them of their fibrous parts and so renders them more liable to cling about the teeth. Our foodstuffs are presented in too pap-like a form. Examine a series of children after a meal ending with a starchy ingredient, such as bread, biscuits or cake, and you will notice a film of food on the surfaces of the teeth, a layer clinging around the gum margin; on the other hand, if an apple or fresh green vegetable has been eaten, the surfaces of the teeth will be free from food, or, if present, the food will be lying lightly on the surface. But the lodgment of food would not be of such great import if it were not for the fact that the carbohydrates now used are more easily and readily fermented.

Take wheat, which, in the form of flour, forms a very important item of diet among the poorer classes. Stone-milled flour, which contained the whole of the grain except the greater portion of the husk, has been replaced by roller-milled flour, from which the germ and practically all the bran have been removed, the flour consisting almost entirely of starch and gluten. With regard to the question of caries, bread made from stone-milled flour requires more mastication and insalivation than that made from the roller-milled, and—what is probably more important still—the finer subdivision of the starch granules in the roller-milled flour offers an increased surface for the action of fermentation.

The increased consumption of biscuits is, I am convinced, responsible for a large amount of caries. In biscuits, the carbohydrate is in a peculiarly sticky form, and there is frequently the addition of sugar. The pernicious practice of giving young children biscuits and milk just before going to bed is responsible for a large amount of rapid and extensive

caries. The parents will often tell you that the teeth are cleaned afterwards, but the pappy biscuit is pushed into any crevices in the teeth, lies as a film between the approximal surfaces, and escapes the cleansing action of the brush.

I pass to the question of sugar and its relation to caries. There is abundant clinical evidence to show that the use of sugar is closely connected with the amount of caries. The consumption of sugar has increased since the beginning of the 18th century from about 3 lbs. per head per annum to about 92 lbs. in 1911, and in this year 6.31 lbs. per head of glucose was also consumed.

The following figures showing the amount of raw sugar retained for consumption in the United Kingdom and is of interest even when the increase in population is taken into consideration:—

Annual average 1824-1828—3.3 million cwt.

Annual average 1884-1888—22 million cwt.

Annual average 1919-1922—45 million cwt.

The output of confectionery is equally instructive, and I am informed that the estimated output in 1922 was rather more than 4,000 tons a week.

Now, what evidence have we to support the case against sugar as a factor in the production of caries?

First, you must, I think, accept the statements of dental clinicians. In practice, we find that children who eat sweets in large quantities will return from school each term with a plentiful supply of fresh and generally rapid caries, but when the eating of sweets is stopped the amount of fresh caries rapidly declines. People, too, who have a dislike for sweets and sweet things invariably have teeth above the average.

Secondly, we have the observations made of groups of individuals by different investigators. I will refer briefly to two: Dr. L. Ottogy has shown that, in the Philippine Islands, among the Igorots, a primitive race, whose diet requires considerable mastication and to whom bread is unknown and sugar distasteful, the incidence of carious teeth is 2.05 per cent., whereas in the Philipinos, who indulge frequently in chewing sugar, the incidence is 20 per cent.

My brother, Dr. S. Colyer, has shown that of three groups of African natives of Bantu descent, whose staple diet was somewhat similar, in two groups caries was rare, about one tooth in every 270 being affected, and in the third group caries was common and was seen in both young and old. In the first

two groups no sugar is eaten, in the third considerable quantities are consumed, mothers giving their children sugar by day and sometimes at night to pacify them.

The progress of caries is naturally influenced by the degree of resistance of the teeth. That is a fact within the knowledge of every dental practitioner. Teeth with pits and fissures fall a prey more readily than those not showing these defects, and some teeth are of such poor quality that, when attacked by caries, they crumble away with amazing rapidity. The more, therefore, we can improve the calcification of the teeth, the greater will be the reduction in the amount of caries.

Researches made by Mrs. E. Mellanby show that the teeth of dogs can be influenced in their structure by diet, and it has been assumed that in the structure of the teeth lies the solution of the problem of caries. But the strongest teeth will give way before a persistent attack of fermentable carbohydrates, whereas the weakest teeth will remain free from caries providing the attack is lacking. It is to the attack and not so much to the defence that our preventive measures must be directed.

In some quarters it is argued that we cannot lay down rules for prevention because we do not know the cause. From that view I entirely dissent, and I maintain that such statements are made by those who often have not sufficient knowledge to set out certain rules which experience has shown will lead to the prevention of this wide-spread trouble.

Caries is really a question of diet. Get rid of the soft, sticky, starchy foods, lessen the consumption of sugar, and adopt a diet which requires efficient mastication of food of a self-cleansing type, and the disease will pass from our midst. As an example of the slight amount of caries that is seen in children eating a simple diet including but little sugar, I will refer to some figures furnished by Mr. F. Breese of a Poor Law School. In the year 1926 the number of teeth showing fresh caries in 490 children was 409, but as in these figures are included the carious teeth treated in the entrants whose teeth had not received attention, he estimates that the actual fresh caries was a little over .7 per child.

I realise that it is hard to alter the diet habits of a people, but if we are to succeed in our conquest of dental caries, we must face the problem boldly, and I believe what will prove beneficial for the teeth will prove of like value to the health of the whole of the digestive track.

To put the matter in a practical way—we must get rid of the finely ground flour and resort to the coarser form, which will mean bread that requires more mastication. Let us banish the use of biscuits, forbid “sweets” and, where the home budget will allow, end with fruit and uncooked vegetables. My friend, Dr. Sim Wallace, advocates an apple at the end of a meal; that is an excellent plan, but I would point out that even apples at every meal are beyond the means of many of our race.

After all meals the mouth should be swilled with water, and the last thing before going to rest the teeth should be thoroughly cleaned with the toothbrush, but here again I would remind my hearer that the cost of a toothbrush is beyond the pockets of many people. In the case of the infant, it is advisable to clean the teeth after every meal with a brush dipped in clean water, to which has been added a pinch of salt, as swilling of the mouth is not practicable in the infant.

The knowledge of how to prevent caries—and, may I add, “pyorrhœo alveolaris”—should be spread by lectures given throughout the length and breadth of the land by individuals whose names carry authority. Such lectures, to interest the audience, must be illustrated by attractive lantern slides. The aid of the press should be sought and articles published bearing the authority of responsible bodies.

Personally, I think the peak has been passed and dental disease is on the decline, this being due, in a large measure, to the active teachings of the people by the rising generation of dental surgeons. Given an intensive campaign on the lines advocated, the near future should see the complete abolition of preventable dental disease.

Time will not permit me to discuss remedial treatment, but it must be obvious that a carious tooth should be filled or extracted according to the condition of the pulp.

In conclusion, may I say that wherever the preventive measures outlined here have been faithfully carried out, the result has been most gratifying.

I should like to acknowledge my indebtedness for special information to Sir Edmund Phipps of the Board of Education, Sir George Newman of the Ministry of Health, Dr. F. N. K. Menzies of the London City Council, Mr. J. Mair of the London School of Economics, and Messrs. J. R. M. Simmons and F. Breese.

Obituary

DR. CASWELL A. MAYO.



R. CASWELL A. MAYO, of Cincinnati, was widely known throughout the dental profession of United States and Canada and his many friends learned of his passing with sincere regret. Since 1888 Dr. Mayo had attended every meeting of the American Pharmaceutical Association except one. That one was the last. And at that meeting the men and women who for many years had been accustomed to seeing him—missed him. To show that they had not forgotten they sent to him a message of greeting and cheer. “The Years Pass On” is the title of this poem which Dr. Mayo wrote in response:

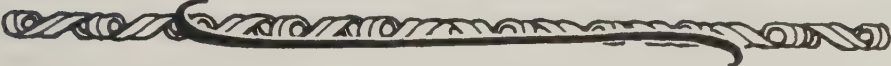
*The Years pass on—the long procession of the years,
Each filled with life and love, with laughter and with tears.
And they pass too—those friends we loved and met
Each year too briefly—but never to forget
Their love and kindness, and the things we saw
And did together; the hills we climbed; the raw
Bleak mornings on the misty mountain top
That towered over plains, where to a line might drop
Ten thousand feet; the lovely azure lake
Whose surface did a perfect mirror make
Wherein tall cliffs and darkly towering pines
Inverted stood along the mirror's curving lines;
The rushing streams beside the road that ran
Across a continent, to prove that man
Can master Nature; the cities proud,
Whose uproar, whose clangour and whose crowd
But served to bring us closer, to bind tight
The bond of memories shared and of delight.
They pass who shared the swiftly passing years;
The circle smaller grows, and all our tears
Can never widen it; never bring them back
To share those dear delights. The lack
Their absence leaves can not be filled. Each year
We who are left can meet and shed a tear.
For those no longer with us, and live o'er
With saddened hearts the days that are no more.*

* * * *

*I thank you for the message which you send
To one who's proud to reckon you as friend;
And only hope next year a kindly fate
Shall let us meet again in that far State
All girt with seas and mountains, and whose lakes
A joyous summer play ground makes.
But if we shall not meet; if the hand of Fate
Shall beckon one of us to pass beyond the gate
Of life; you will know your kindly thought
Of me in absence, has keen pleasure brought
To one left lonely by the passing years
Whose loneliness your friendly message cheers.*

GREATNESS AND CHARACTER.—No man ever did a great thing who has lost his character in the process.

Oral Health



Vol. 18

TORONTO, FEBRUARY, 1928

No. 2

EDITOR:

WALLACE SECCOMBE, D.D.S., F.A.C.D., Toronto, Ont.

CONTRIBUTING EDITORS:

C. N. JOHNSON, M.A., D.D.S., F.A.C.D., Chicago.

W. E. CUMMER, D.D.S., F.A.C.D., Toronto.

Entered as Second-Class Matter at the Post Office Department,
Ottawa.

Subscription Price, Canada and United States, two dollars per annum; elsewhere three dollars. Single Copies 25c. Free distribution to all members of the Dental Profession practising within the Dominion of Canada and Newfoundland.

Original Communications, Book Reviews, Exchanges, Society Reports, Personal Items and other Correspondence should be addressed to the Editor Oral Health, 102 Wells Hill Avenue, Toronto, 10, Canada.

Subscriptions and all business Communications should be addressed to The Publishers, Oral Health, Royal Bank Building, 269 College St., Toronto, 2, Can.

EDITORIAL

More About Annual Membership in Canadian Dental Societies

N the last issue of ORAL HEALTH considerable space was devoted to the advantages to the profession and the public in well-organized Canadian dental associations. The adoption of an inclusive annual fee to be paid by every member and to include national, provincial and local organizations, as already adopted by the American Dental Association, is being urged upon dental societies throughout Canada.

Elsewhere in this issue, an article written by Dr. A. W. Faulkner, under the caption, "*Dominion Dental Council versus Canadian Dental Association*" is published. Dr. Faulkner shows a desire to loyally co-operate with the Canadian Dental Association officers in their endeavour to develop a strong Canadian national dental association. He urges that dele-

gates to the Canadian Dental Association should be appointed by the licensing boards as are the delegates to the Dominion Dental Council. Others, however, consider it better that delegates to the Canadian Dental Association be appointed by the voluntary provincial dental associations. Each province will, doubtless, adopt the method best suited to its own peculiar needs.

The Dominion Dental Council and the Canadian Dental Association are entirely separate and distinct organizations, each having its own work to do and in no way conflicting or interfering with the other. Those provincial dental boards in Canada which choose to elect representatives to the Dominion Dental Council are responsible for the work of the Council so long as they continue to appoint delegates. The Dominion Dental Council deals primarily with dental standards and examinations, arranging that the agreeing provinces accept the Council diploma in lieu of the provincial examination for licensure. This work is somewhat similar to that of a national council of registration.

Upon the other hand, the work of the Canadian Dental Association is similar to that of other voluntary dental societies and is quite comparable to that of the American Dental Association, though necessarily Canadian conditions compel modifications.

Every province of Canada is to be included in the Canadian Dental Association membership and it is hoped and fully expected that within a comparatively short time every ethical dentist in Canada will be a member, and that one fee will include membership in local, provincial and national associations. This is the ideal of 100% membership referred to by Dr. Faulkner, and which will be accomplished by all societies adopting an annual membership plan rather than having membership contingent upon mere attendance at a dental convention.

We believe the Canadian Dental Association, composed of delegates from the several provincial voluntary societies, will in practice be equally representative as though delegates were appointed by the licensing boards. Where provincial voluntary dental associations are in existence the selection of delegates by such will prevent any possibility of the work of the Dominion Dental Council and Canadian Dental Association being confused in the minds of either the dental profession or

the Canadian public. Upon the other hand, it may be found in some cases that delegates would be more representative if appointed by the legal association of the province concerned.

The method of selecting provincial delegates may in the meantime be safely left to each province to determine. Experience will show which plan is preferable.

New University Buildings, for Montreal



THE University of Montreal, including the Faculty of Dentistry, is to be housed in the new University Buildings within the next two years. Construction will commence in June and will be completed by June, 1930, at a total cost of six million dollars.

The architect, M. Ernest Cornier, is to be congratulated upon the magnificent design of the buildings, which are artistically arranged in a series of extensions from the main building.

Personal Sketch of the Subject of This Month's Frontispiece—Dr. Arthur D. Black



THE name of "Black" is indissolubly associated with Northwestern University Dental School. Arthur D. Black has followed in the footsteps of his illustrious father and has rendered outstanding service to the dental profession.

In 1905 Dr. Black was chairman of the committee that re-organized the Illinois State Dental Society on the component society plan, when the membership was increased from a few hundred to over a thousand. During the several years following he visited many other States assisting in their re-organization on the plan which had been so successfully carried out in Illinois. In 1912 the same principle was applied in the re-organization of the American Dental Association and its membership was increased from about 800 to some 13,000 the next year, and has since grown to more than 30,000 members.

As Chairman of the Dental Index Bureau Dr. Black has rendered valuable service to the profession. We understand that the work of indexing the articles completely up to date has been finished and it is only a question of the cost which will

delay the publication of the remaining issues. These should all be printed within the next two or three years.

More recently Dr. Black's work has been in connection with the construction and equipment of the new premises of the Northwestern Dental School which is now located in the Montgomery Ward Memorial Building, the dedication ceremonies of which took place in June last year. Mrs. Ward has been very generous in her contributions to the school and particularly in the provision that has been made to spend annually \$25,000 for the next fifty years in scholarships, part of which will be for undergraduates, part for graduate students and part for research by Faculty members.

Dr. Black has been a teacher in Northwestern University since his graduation in Dentistry in 1900 and has been Dean of the Dental School since 1917. He received the degree of B.S. from Illinois College in 1892, D.D.S. from Northwestern University in 1900, M.D. from Northwestern University in 1901. The honorary degree of A.M. was conferred upon him by Northwestern University in 1912, and the honorary degree of Sc.D. by Illinois College in 1918.

Dr. Alex. Campbell Injured



AN unusual and exceedingly unfortunate accident befell Dr. Alex. Campbell, of Wiarton, when an alcohol lamp exploded while he was holding it in his right hand, resulting in the loss of three fingers. Dr. Campbell graduated from the University of Toronto in Dentistry, in 1925, and is known throughout Canada as one of the best outside wings who ever wore the colors of the University Rugby team.

Dr. Campbell took up dental practice in Wiarton after graduation and his many friends throughout the profession will learn with sincere regret of his injury.

Think Creative Thoughts

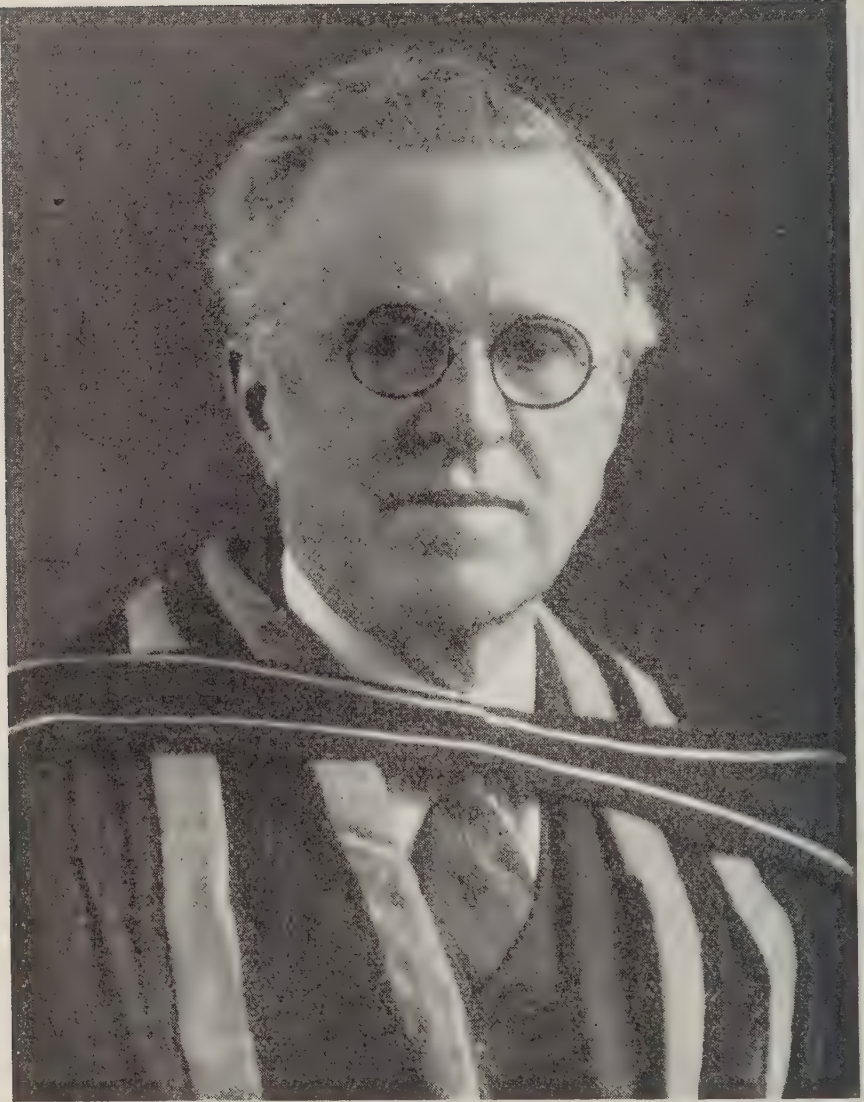


SO long as you radiate doubt and discouragement, you will be a failure. If you want to get away from poverty, you must keep your mind in a productive, creative condition. In order to do this you must think confident, cheerful, creative thoughts. The model must precede the statue. *You must see a new world before you can live in it.*

121

All common things, each day's events,
That with the hour begin and end,
Our pleasures and our discontents,
Are rounds by which we may ascend.

—*Longfellow.*



DOCTOR A. W. THORNTON,
Dean, Faculty of Dentistry, McGill University.

ORAL HEALTH

*A JOURNAL THAT STANDS FOR THE "OUNCE OF
PREVENTION AS WELL AS THE POUND OF CURE"*



Vol. 18

TORONTO, MARCH, 1928

No. 3

A Testimonial to Dean Thornton Planned by His Friends



HE many friends of Dean Thornton will learn with sincere regret that his health has been gradually failing for some time and that his condition is such as to demand a complete rest and retirement from active work.

Doctor Thornton has given many years of valuable service to his chosen profession and it is proposed that his retirement be marked by a suitable testimonial from his numerous friends as an expression of their affection and the appreciation of the profession for the valuable contributions Dean Thornton has made to the status and progress of Dentistry.

It has been decided by a committee of his personal friends that the testimonial shall take the form of a purse of gold and that every dentist have the privilege of sharing in this token of good-will toward one of their number who has been permanently incapacitated by illness. Those desiring to avail themselves of this opportunity may do so by forwarding name and amount to *Doctor A. L. Walsh, McGill University, Montreal, before the 20th of April.

Dr. Thornton graduated in Dentistry from the University of Toronto in 1890 and practised for a number of years in Chatham, Ontario. In 1902 he was appointed Professor of Crown and Bridge Prosthesis in the School of Dentistry of the Royal College of Dental Surgeons of Ontario, where he served until 1913, when he was appointed Dean of the Faculty of Dentistry at McGill.

Dean Thornton was greatly appreciated as an after-dinner speaker both in Canada and United States, and some years ago

* Please make cheques payable to McGill University, Thornton Presentation Fund.

was honoured in being elected President of the American Dental Teachers' Association.

THE THORNTON TESTIMONIAL COMMITTEE.

The Thornton Testimonial Committee is composed of Doctors F. G. Henry (chairman), A. W. McClelland, F. H. A. Baxter, J. S. Dohan, D. P. Mowry, Wallace Seccombe and A. L. Walsh, honorary secretary-treasurer. A special names committee has been appointed with Dr. Dohan as chairman.

A Resolution

“O keep my health! To do my work! To live! To see to it I grow and gain and give! Never to look behind me for an hour! To wait in weakness and walk in power! But always fronting forward to the light! Always and forever facing toward the right! Robbed, starved, or defeated, fallen, wide astray—On, with what strength I have! Back to the way!”

Higher Standards in Dentistry

THE Report on Higher Education in the State of New York for the School Year ended July 31, 1926, was published under date of February 15, 1928, and discusses the results in New York State of the adoption of the “two-four” plan in Dentistry.

“The Board of Regents indicated clearly its attitude by providing that after January 1, 1927, admission to the dental licensing examination shall be based on two years of college study plus four years of dental study. This position taken by the Board of Regents is based on the confident belief that the time is ripe when dentistry, as a co-ordinate agent in the conservation of public health, demands the same broad academic training and the same thorough professional training as that which is exacted of practitioners of medicine. The “two-three” plan is one of expediency for the present, but the Board of Regents, through the years in the advancement of standards for admission to and the practice of the professions, has consistently not been influenced by expediency, but rather has looked forward to the good to be accomplished—10, 15 or 20 years hence. With this policy, the wisdom of which has

been demonstrated through the past 20 years, the Department holds that 10 years hence the 'two-three' plan will be relegated to the past and that all dental schools worthy of registration by the Board of Regents will have adopted the 'two-four' plan. New York adopted the 'two-four' plan two years ago for all her schools and the results have demonstrated that our schools are receiving for admission a very much higher type of student—better educated and with greater professional spirit—than before the adoption of the 'two-four' plan."

The "two-four" plan is in effect two years of Arts college work beyond high school graduation followed by four years in a faculty of dentistry. This standard is equivalent to the "one-five" plan which in effect is one year of Arts college work beyond Pass Matriculation followed by five years in a faculty of dentistry, the first of the five being a pre-dental year.

One year of Honour (Senior) Matriculation work when of a character to be accepted by a University as equivalent to the first year in the Pass Arts course, entitles a candidate to enter the five-year course.

Focal Infection

Symposium of Four Papers Presented at a Combined Meeting of the Sections of Medicine and Pathology, Osler Hall, Academy of Medicine, Toronto, January 10th, 1928.

DOCTORS W. L. HOLMAN, W. L. ROBINSON, DUNCAN GRAHAM AND H. K. BOX, of the University of Toronto.

* * *

The Bacteriology of Focal Infection

W. L. HOLMAN, B.A., M.D.

Associate Professor of Bacteriology and Associate Director of Applied Pathology, University of Toronto.

ACTERIOLOGISTS are more interested in the activities of germs in the body of man and animals than in the study of the isolated bacteria. The conditions in man which permit the invasion of bacteria is by far the most important part of their study, and it is

therefore not easy to define the limitations of the interests of a bacteriologist. Everyone engaged in medical practice is in truth a practical bacteriologist, learning from day to day the many manifestations of bacterial metabolism; striving to render the human soil unfavorable for bacterial growths, preventing in innumerable ways the contacts with dangerous germs and never free, no matter what specialty he follows, from the fear of bacterial complications.

In Focal Infection we have one of the most interesting and important problems of medicine to-day. It includes in its scope every field of medicine and is difficult and complicated. Covering as it does both acute and chronic diseases it might well take up the total space of many issues of this Journal and still be far from having reached its limitations. Such being the case I must confine myself to very broad outlines.

My attention was recently called to Olmstead's History of Assyria, where there is a reference in which the king's physician told the king the pains and aches he was having in his head and limbs were due to his teeth and he would have to have them extracted. This was in the middle of the 7th century B.C. Thus it is seen that the idea of focal infection is not very new. To-day, 2,500 years after, we are still deeply concerned with the same problem.

Focal infection as a principle is defined as the process of infection from an established infected focus and the secondary infection of other parts. Such an infected focus is not simply the site of the portal of entrance in bacterial invasion, such as occurs in all infectious diseases, but is a local well-established infection capable of permitting the passage of its contained germs, from time to time, into the circulation. Such locally infected tissue is certainly, not continuously active; indeed it may lie latent for months and even years; it may give rise to true bacterial toxemia or have general harmful effects through the dissemination of toxic substances arising from local tissue destruction and non-specific bacterial products; it may light into activity under numerous stresses in the body economy; it may be but one manifestation of a generalized infection. The important point is that such infected foci do cause secondary infections in distant organs and tissues and our attention as a rule is drawn to the condition only after this has occurred.

The criteria necessary to prove that an infected focus is responsible for the secondary infection are not always clearly

appreciated. If it is suspected that a patient is the subject of this type of infection we must first find the infected focus and then satisfy ourselves that it is actually the source of the invasion. This is far from easy. Merely finding bacteria is not enough; the term "infected focus" means in itself that there are bacteria there. Are the bacteria which are found the same as those which are infecting the secondary focus? Blood cultures may settle the question, but because of the transitory nature of the invasion they are all too frequently negative. The reactions of the patient to the bacteria from the suspected focus may be helpful. Culturing the isolated bacteria in the patient's own blood has been tried and it has been assumed that if they grow in the blood in the test tube they will also grow in the circulating blood. Skin tests with these bacteria or their products have shown that most adults are more or less sensitive, but the difference between immunity and hypersensitivity cannot be easily defined. An injection of an autogenous vaccine may cause an increased reaction in a secondary focus and thus help as presumptive evidence. Determining the presence in the patient's serum of various immune substances such as agglutinins, opsonins, complement fixing bodies, precipitins and others has also been tried but has not given results which can be interpreted as conclusive. Persistently high uric acid value for the blood has been thought to indicate an actively infected focus, as has the presence of lymphocytosis and lowered sugar tolerance. These conditions are said to rapidly return to normal when all active foci have been removed or cured.

The evidence, however, which has been most effectively used to incriminate a suspected focus has been largely pragmatic. Remove the foci and cure the patient's condition! This *ex post facto* type of experiment is apt to be misleading; failures are forgotten and successes over-emphasized.

Animal experiments also have played an important part in establishing the significance of this type of infection. Lesions very closely resembling those found naturally in man, often indeed identical, have been repeatedly produced in animals by intravenous injection of bacteria from human infected foci.

The Infected Foci most frequently met with are those of teeth, tonsils and the intestinal tract. It is remarkable and should serve as a warning that specialists tend to find infected foci confined to their particular field. However, on anatomical

and mechanical grounds, certain foci are potentially more liable to permit invasion than others. The pathology of these will be discussed by others. I may merely mention that ulcers and other infected sites in the crypts of tonsils, about the teeth in pyorrhœa and periapical infections, and in any part of the intestines, have rich capillary beds and, with the movement so frequent in these parts, healing is checked and invasion encouraged. The entrance of the bacteria in most of these cases is probably directly into capillaries, but thromboses of small vessels may also occur and from these the germ may be set free into the blood stream.

SECONDARY LOCALIZATION.—There are two broad divisions of the views as to why the invading bacteria secondarily infect this or that tissue or organ. The first is that there exist local conditions in the organ which favour the localization. The second is that the bacteria themselves, because of some inherent quality which they have developed in the primary focus, have adapted themselves to attack by preference certain individual organs or tissues. This latter is the Elective Localization Theory of Rosenow. I will briefly discuss the results of Rosenow and his school. The localization in tuberculosis has been considered by many as confirming this theory. However, no one, I believe, has ever suggested that the tubercle bacillus from kidney, spinal fluid, bone, adrenal, skin or elsewhere shows any tendency to locate in the organs of animals analogous to those from which they were isolated. Localization of tubercle bacilli varies in different animals and depends on the conditions in the animal body favouring or disfavours the development of the bacillus. Further, practically all the achieved success in the treatment of tuberculosis has been through the treatment of the patient in order to prevent the growth and activity of a common strongly aerobic germ.

Rosenow did not indicate in his tables of *Streptococcus* Localization any differences in the distribution of lesions in the different animal species nor the effect of varying the dosage or the number of injections; nor the different distribution according to the age of the animal; nor the lesions found after various times following the injection; nor the seasonal variation. He did not use the same number of animals for each strain. He did not distinguish between the strains used from the actual lesion in man and those from the suspected focus; nor

ORAL HEALTH for March, 1928

when he used pure cultures and when mixed cultures; nor did he ever find spontaneous lesions in his animals of experiment. The personal element is hard to evaluate and one is not sure that he used the same meticulous care in determining the sites of localization in all cases. Nevertheless, in spite of all these gross sources of error, I have taken his results as he gives them, but I have rearranged them on what I believe to be a more logical basis. I first determined the number of lesions in the different organs produced by all his injections of streptococci—

ROSENOW'S RESULTS.—I.

Rearranged from his article on Elective Localization, 1915.

LESIONS IN	NUMBER OF ANIMALS. TIME TESTED.			
	ISOLATION	LATER	PASSAGE	TOTAL
JOINT.....	131	28	37	196
ENDOCARDIUM.....	122	17	21	160
MYOCARDIUM.....	82	11	16	109
MUSCLE.....	78	13	19	110
STOMACH AND DUODENUM HEMORRHAGE.	130	16	36	182
STOMACH AND DUODENUM ULCERS....	92	10	27	129
GALL BLADDER.....	76	5	38	119
APPENDIX.....	65	8	14	87
KIDNEY.....	54	5	16	75

and then I estimated the percentage of each lesion produced by the so-called "specific" or "non-specific" strain.

The tables show that there is practically no evidence from Rosenow's own results which would indicate any elective localizing quality in the so-called "specific" strains. It would appear to be governed by the law of chance. Lesions are produced by certain strains of streptococci injected into the blood stream, but it is approximately a 50 per cent. chance whether the strain giving the lesion came from a patient with that particular localization or any other.

The one point of interest is: Does the localization of the injected streptococci depend on an inherent property in the germ which functions despite alterations in technique or the

ORAL HEALTH for March, 1928

ROSENOW'S RESULTS.—II.

Rearranged from his article on Elective Localization, 1915.

STRAINS FROM	LESIONS IN	Percentage of Animals. Time			
		Isolation	After	Passage	Total
Rheum. Fever.....	JOINTS	36	11	19	29
Other Cases.....	"	64	89	81	71
Endocarditis.....	ENDOCARDIUM	30			23
Rheum. Fever.....	"	27	18	48	29
Other Cases.....	"	42	82	52	48
Rheum. Fever.....	MYOCARDIUM	38	36	44	39
Myositis.....	"	17			13
Other Cases.....	"	44	64	56	48
Rheum. Fever.....	MUSCLES	24	0	16	20
Myositis.....	"	38			27
Other Cases.....	"	37	100	84	53
Gastric Ulcer.....	STOMACH AND DUODENUM. HEMORR.	48	6	25	40
Other Cases.....	"	52	94	75	60
Gastric Ulcer.....	STOMACH AND DUODENUM. ULCERS.	67	0	48	58
Other Cases.....	"	33	100	52	42
Cholecystitis.....	GALL BLADDER	43	20	24	36
Other Cases.....	"	57	80	76	64
Appendicitis.....	APPENDIX	71	50	71	69
Other Cases.....	"	29	50	29	31
Rheum. Fever.....	KIDNEY	52	60	50	52
Other Cases.....	"	48	40	50	48

numerous variable factors in the environment of the animals such as age, diet, season and many others? This point is certainly far from having been proved.

On the other hand, we have the overwhelming evidence that the local conditions in the organs and tissues are the more important determining factor in the localization of invading or injected bacteria. Certain parts of the body are peculiarly liable to become infected from bacteria in the blood, as is shown in the first table, and this largely depends on the circulation in the finer capillaries. The numerous factors affecting the circulation in different organs will account for many of the individual differences met with. The profound effect of heat and cold in changing the metabolism of the entire body, the reflex reactions from the skin to mucous membranes and deeper structures, the alteration in the composition of the blood and the individual differences in the response to such

stimuli must be carefully considered. Diet also plays an important part and vitamine deficiency, even when slight, is enough to change the susceptibility of individuals as does ordinary over or under eating and many other dietary errors. Fatigue is perhaps the most important factor of all, because it is so inclusive. Overwork of any organ is at the bottom of probably most of these infections. Fatigue of function lowers the resistance to infection in many ways and thus any organ under continual stress becomes the site of an infection if there is an infected focus delivering bacteria into the blood stream.

Foci of infection become established in the tonsils, teeth and other places, under a great variety of predisposing conditions, some of which have been mentioned. The common cold is frequently the manifestation of conditions favouring such bacterial implantations and also favouring invasion from previously established infected foci. Unaccustomed violent exercise in untrained individuals, with the accompanying general dilation of capillaries to meet the physiological need, favours the passage of bacteria from infected foci into the blood stream. The rapid collapse of the capillaries, after the physiological demand is over favours the stoppage of the circulating bacteria in the slowed current in many organs. Trained athletes have learned these dangers, but most of us have not. The bacteria thus implanted will cause infection in the organ with the poorest response to the bacterial irritation. I do not wish to under-estimate the importance of bacteria in the long list of disease processes, associated with infected foci, but I would emphasize that many of the factors favouring the development of infected foci and determining the seat of secondary localization can be controlled and this gives more hope of success in treatment and prevention than a hypothetical characteristic of the bacteria which throws us back to a purely fatalistic explanation of these disastrous infections.

The focus of infection many times becomes the point in the vicious circle which must be attacked to relieve the situation, but unless it is considered more as a serious complication of an underlying abnormal condition than as the primary cause there will be many failures in the treatment. New Foci will develop; secondary foci may have been established as distributing points for further blood stream invasions; the damage done may have already precluded repair or cure and too much optimism that the process is stopped, because attacked at one

point, will only lead to discouragement. Focal infection is the result of errors in our methods of living, and will not be checked until we understand, more thoroughly than to-day, what these errors are. There is no specific bacterium or virus concerned: it is a continuous contest between bacteria of varying virulence and the altering resistances in the tissues of the human body. There is no sweeping victory possible. It is an everlasting truce.

* * *

The Pathology of Focal Infection

W. L. ROBINSON, B.A., M.B.,

Assistant Professor of Pathology and Associate Director of Applied Pathology, University of Toronto.



WHILE the subject of focal infection, to the pathologist, may lack the glamour of a rare tumor, the interest of a new disease or the tragedy of a fatal infection, it still must be viewed with much concern and warrants his best efforts in the elucidation of its obscurities. The problem does not concern itself so much with the fatalities among its victims as the big economic factor involved in the general lowering of efficiency and loss of good health.

Focal infection has been described as the process of infection from an established infected focus and the secondary infection of other parts. There must be an established primary focus of infection which is more or less persistent and oft-times obscure in its manifestation. Secondary foci of infection become established in other parts of the body from this original focus. Broadly speaking, all cases of infection with secondary dissemination might be grouped under the heading of focal infection. This use of the term, however, is too comprehensive and is not in accord with the generally accepted idea. Focal infection is characterized by lesions of obscure origin which in the last few years have been found to be the source of chronic foci infection in other parts of the body.

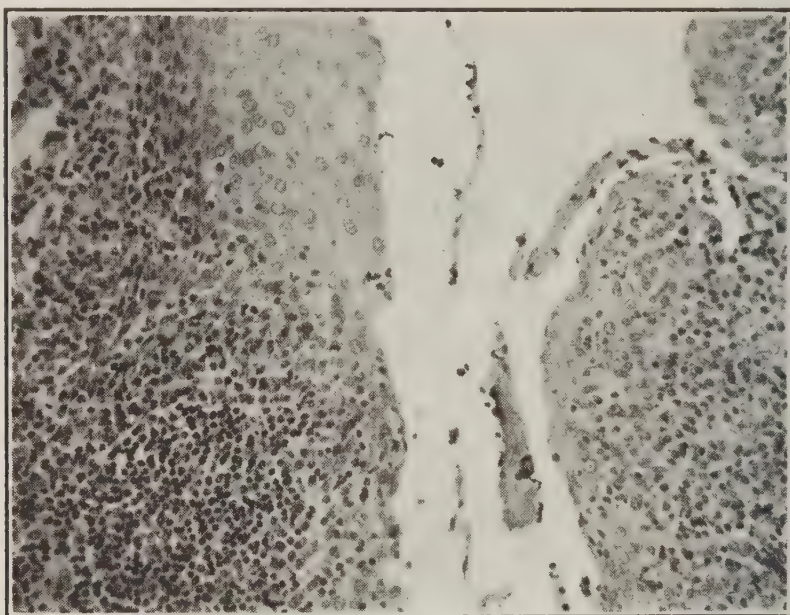
The pathology of this condition involves a review of the primary lesions and their secondary implantations. The primary lesions are something more than mere portals of entry for bacteria. It has been shown that bacteria will pass through

the unbroken wall of normal intestinal mucosa. This represents a portal of entry, but not necessarily a primary focus of infection. To be a primary focus there must be an established infection which is persistent and usually low grade in type. These foci are often rather obscure in their clinical manifestations. They are usually found in the tissues exposed to extraneous sources of infection such as the naso-pharynx, including the accessory sinuses, middle ears, mastoids, teeth and tonsils, the respiratory system, the gastro-intestinal and genito-urinary tracts. The tonsils and teeth are probably the most important.

The tonsils probably owe their importance as primary foci of infection to their peculiar anatomical structure and their position at the gateway to the naso-pharynx. Their crypts are tortuous and deep, extending practically to the capsule. Their walls are held in close apposition by pressure of the surrounding lymphoid tissue. The mouths of those which empty anteriorly or superiorly may be partially closed, those anteriorly by the plica triangularis and the latter by the hood-like superior wall of the supra-tonsillar fossa. The supra-tonsillar crypts have the added disadvantage of draining upwards. The result is that a certain amount of cellular debris is found in all crypts. Bacteria from the faucial cavity enter these crypts and there find congenial soil for their development.

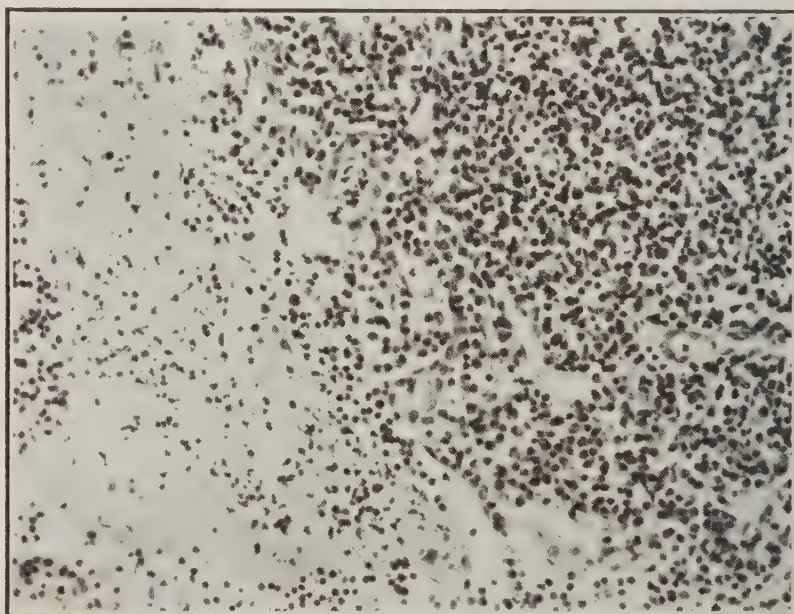
In childhood the primary infections are prominent. The tonsils in this period of life are large and prominent, as are all lymphoid structures of the body. Infections are usually acute and run a fairly rapid course, ending in resolution without any secondary foci being necessarily established. In adults, however, tonsillar infections are more liable to persist and to continue as low grade processes from which bacteria are liberated into the blood stream to localize in susceptible areas in other parts of the body. The tonsil infection may be the result of a common cold or secondary to teeth, or sinus disease. It may be more or less obscured by the prominence and often more serious manifestations of the secondary foci.

In a more careful study of the crypts of the tonsils we find certain peculiar anatomical structures which favour infection. Their lining epithelium is very thin, being not more than one or two layers of cells in thickness. They also have papillae which are rich in capillaries. The capillaries are thus brought into close proximity to the lumina of the crypts. The lining

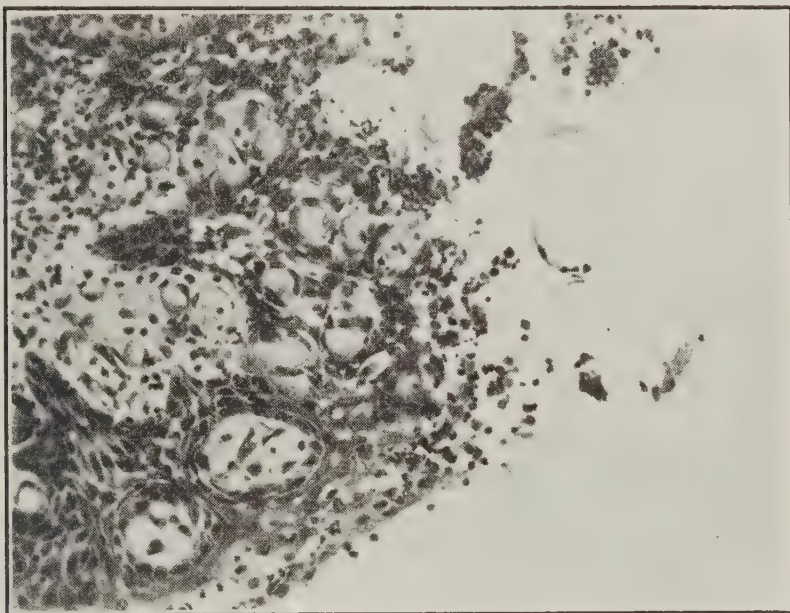


TONSIL.—Orifice of crypt, showing the transition from a thick layer of epithelium covering the exposed parts of the tonsil to the thin layer lining the crypts.

epithelium offers little mechanical resistance to the entrance of foreign particles from the crypts into the parenchyma. The conditions are ideal for the invasion of bacteria and the ab-

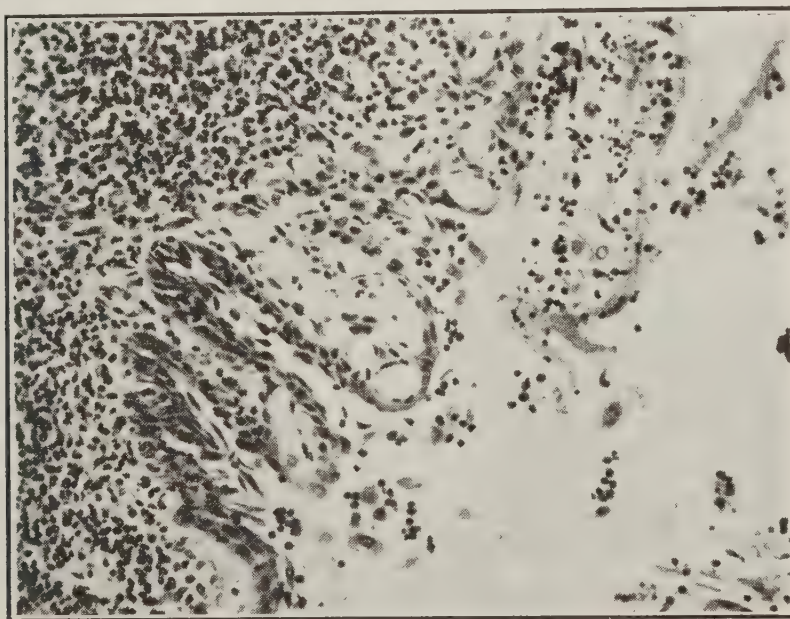


TONSIL.—Ulcer in crypt. A few lining cells still remain. The lumen of the crypt is filled with exudate.



TONSIL.—Ulcer in crypt, showing exposed bed of dilated capillaries.

sorption of their toxic products. The outer exposed surface is covered with a comparatively thick layer of squamous epithelium which no doubt protects it from direct infection.



TONSIL.—Ulcer in crypt, showing numerous dilated capillaries in close proximity to lumen of crypt.

The establishment of an infection in the tonsils is dependent upon the entrance of pathogenic bacteria into the crypts and their continued growth. This latter factor of course, is determined by the virulence of the bacteria, in relation to the resistance of the host. Poor drainage of the crypts must also play an important part. This may be caused by an excessive keratinization and desquamation of the lining cells which accumulate and plug the exit of the crypts. Old fibrous adhesions may produce similar obstructions. The process may first be acute, later it may subside into a chronic phase or be chronic from the first.

Clinically, the tonsils may show very little. They may be small and buried. It is only when they are removed and sectioned that their true nature is revealed. One finds the crypts to contain an excessive amount of cellular debris, whitish or greenish in colour, and very often with an offensive odour. The orifice of a crypt may be found obstructed and its lumen dilated and filled with purulent material to form an abscess.

Microscopically, considerable accumulations of cellular debris with lymphocytes and sometimes polymorphonuclear leucocytes are found in the crypts. The most important and interesting finding, however, is the presence of small ulcers in their walls. These may be rather extensive and have in their bases numerous widely dilated capillaries. Such capillaries offer easy entrance for the bacteria of the crypts into the general circulation. Where the epithelial lining is intact it usually shows a varying infiltration of lymphocytes even to the point where the lining cells are badly disrupted. One also frequently finds the "Ashes and Embers" of former infections in the scarring of the parenchyma and the thickening of the capsule and trabeculae. In fact, it is quite unusual to find normal tonsils in adults.

In a short paper of this nature it is impossible to discuss individually the secondary foci. They may be distributed widely throughout the body and produce lesions of considerable magnitude and seriousness. They appear to have a predilection for serious membranes although they may be found almost anywhere in the body. The mechanism which determines the location of secondary foci has been discussed by Dr. Holman. In connection with the secondary lesions, however, one thing seems certain, namely, one attack appears to lower resistance and predisposes to subsequent attacks which

follow with each flare-up of the primary focus. Again, a secondary focus may become so well established that it in turn becomes a nidus of infection for the further dissemination of bacteria to the establishment of other secondary foci.

While the clinical results may be quite varied, the pathological findings other than the organ involved, have many features in common. Bit by bit the parenchymal tissues of the involved organs are slowly destroyed by the repeated attacks. With subsidence of the inflammation there is healing, fibrosis, and a diminution in the number of capillaries in the involved area. This brings about a local lowering of resistance and renders it susceptible to new attacks. In such a manner the function of the organ is gradually interfered with and symptoms make their appearance. The functional disturbance, however, may at times be out of all proportion to the anatomical damage.

In the active stage, the inflammatory reaction is non-suppurative in character. That is, no pus is formed. The reaction may still be acute in character showing oedema of the tissues, engorgement of the vessels and hemorrhage. The cellular infiltration, however, is that of lymphocytes rather than polymorphonuclear leucocytes. The infection may of course be complicated by pyogenic organisms. These would add somewhat to the acuteness of the reaction.

In most cases, however, the reaction is of the subacute or chronic variety. The clinical manifestations are very few and the degree of tissue reaction is moderate. The vascular response is much less. There are no hemorrhages. The cellular infiltration consists of lymphocytes and plasma cells. There is, of course, destruction of parenchyma, and fibrosis, with such reactions. One frequently finds a combination of damaged parenchyma, fibrosis and an active inflammation.

In such organs as the heart, this means much, especially when one of the valves is involved and the myocardial changes are advanced. In the gall-bladder and appendix the damage exhibits itself largely as a reflex effect on the whole gastrointestinal tract, causing a varying amount of disturbance of digestion. In the pancreas the inflammatory reaction may lead to an interference with its glycogenic function and terminate in diabetes. Similar results might be enumerated for many other organs and tissues, in particular for bones and joints.

Conclusions—1. The term focal infection, should be re-

stricted to those cases with obscure lesions, traceable to chronic foci of infection in various parts of the body. 2. The primary lesion is characterized by its location in organs exposed to extraneous sources of infection and the low grade persistent type of infection. 3. The tonsils and teeth are the most common sites of primary infection. This is favoured by their anatomical position and structure. 4. Secondary foci may occur anywhere in the body. They are subject to repeated flare-ups or re-infections and ultimately lead to damage of the organ and interference with function.

* * *

Focal Infection

DUNCAN GRAHAM, M.B.,

*Professor of Medicine and Clinical Medicine, University of
Toronto.*

HE title of the symposium to-night is "Focal Infection." While all pyogenic and specific infections may be considered as arising locally, the term "focal infection" or "focal sepsis" is now applied to chronic, usually low grade, infections that develop insidiously and progress slowly, producing symptoms of local and systemic disease. I will confine my remarks to a discussion of certain medical aspects of this type of focal infection.

In recent years the causal relationship of chronic foci of infection to an increasing number of disease conditions has been the subject of special investigation. It is now generally recognized that chronic focal infection is an important factor both in the causation of disease and in affecting the progress of disease conditions due to other causes. The routine physical examination of patients shows a relatively high incidence of easily demonstratable foci of infection in gums, teeth, tonsils, etc. Many of these patients are in good health and apparently physically fit while others complain of symptoms characteristic of systemic disease or of lesions affecting different parts of the body: as, joints, muscles, heart and kidneys. In this latter group the removal of foci of infection is followed by a cure, or marked amelioration of symptoms, in many instances. Other cases show no change or even an aggravation of their condition. In still another group the removal of a small, apparently insig-

nificant, focus of infection may give patients complete relief from their symptoms. These clinical observations which are not uncommon in the experience of all practitioners of medicine paying attention to focal infection as a factor in disease show: (1) That the incidence of foci of infection is relatively high; (2) That easily demonstratable foci of infection may be present and not produce symptoms; (3) That small foci of infection may cause serious symptoms; (4) That in patients suffering from similar clinical conditions usually attributable to focal infection, e.g., infectious arthritis, the results after removal of foci of infection are inconstant. These clinical findings with reference to the general problem of focal infection as a factor in disease must receive due consideration in the diagnosis and treatment of the individual patient.

The symptoms and signs of disease caused by focal infection may be local or general. They are the result of inflammatory changes produced by the bacteria at the point of localization or the absorption of poison from the infected focus. Foci of infection may be primary or secondary and metastatic.

The common sites of primary foci are: tonsils, naso-pharynx, accessory nasal sinuses, gums and teeth, less often the urethra and skin. Secondary or metastatic foci may be found in any tissue and in any region of the body, but they are found chiefly in the particular tissues of joints, endocardium of the heart and in the kidneys, less often in the prostate, mucous membranes of the lower respiratory tract and the gastro-intestinal tract, gall-bladder, muscles and tendons, nerves, eyes, ear, Fallopian tubes and bones.

Bacteria multiply in the primary focus and the effects produced are dependent upon the location of the primary focus, the character and severity of the inflammatory changes present and whether or not the bacteria remain localized. It is impossible in the time available to discuss in detail the local inflammatory changes and their relationship to the symptoms produced except to point out that patients rarely come on account of the local symptoms produced by primary foci of infection, and that an abscess may form about the tooth, small buried tonsils become septic and pus collect in the accessory nasal sinuses without local symptoms and yet the abscess be the cause of serious systemic disease.

Bacteria in the primary focus may spread by direct extension to the mucous membrane of the lower respiratory tract or be swallowed and cause lesions in the mucous membrane of the

gastro-intestinal tract. Some are carried by the lymphatics to adjacent lymph nodes, causing an adenitis. More often bacteria are spread by the blood stream and lodge in different parts of the body. The symptoms produced depend on the tissue or organ affected and, as with primary foci, on the character and severity of the inflammatory reaction. Local symptoms from focal infection are not only more common, but more severe, from metastatic than primary foci and are more often the reason for patients consulting a physician. On the other hand, primary foci are more often the cause of systemic disease from the absorption of poison.

As metastatic foci of infection may affect any tissue or organ in the body, focal infection must be considered as a factor in the causation of the symptoms complained of by every patient seeking treatment, and a careful search made for possible foci of infection. In this search the assistance of the dentist, otolaryngologist, genito-urinary surgeon and radiologist is often necessary. The final diagnosis and the method of treatment to be recommended is often dependent upon the findings reported from one or more of these special methods of examination. The specialist must be accurate both in the thoroughness of his examination and in the judgment of the significance of his findings. Otherwise an important focus of infection may be overlooked or the patient may be subjected to needless operations.

The effects produced by removal of foci of infection even in patients suffering from similar clinical conditions are never uniform, nor is such to be expected, for too many factors are involved in determining the results that may obtain. In one case, symptoms caused by inflammatory changes in a metastatic focus may completely disappear on removal of the primary focus at an appropriate time. In another case, the local symptoms show no change. In the first instance the local inflammatory changes in the metastatic focus are slight: the removal of the primary focus prevents further re-infection of the distant focus, the metastatic lesion heals and the symptoms disappear. In the latter case structural changes have probably advanced to the stage where functional disturbances of the part are permanent and relief of symptoms will only follow the removal of the metastatic focus, if this is possible. Then, again, there may be more than one primary focus of infection, e.g., teeth and tonsils; the removal of one may produce improvement, but cure will not be complete until the other is treated.

In conditions due to, or associated with, focal infection where removal of foci is possible, the chief causes of failure in treatment are: (1) The removal of a primary focus, leaving a distant metastatic focus, the chief cause of the symptoms; (2) The removal of a single focus of infection, when more than one is present; (3) The treatment along prescribed lines of some definite clinical condition due to causes other than infection, forgetting that a focal infection may be responsible for the lack of improvement in the patient's condition; (4) Lack of consideration in treatment of factors, other than infection, that lower the local resistance of different regions of the body and predispose them to infection, e.g.: trauma, exposure, fatigue, unbalanced diet, etc.

* * *

Dental and Periodontal Foci of Infection

HAROLD K. BOX, D.D.S., PHD.,

Research Professor of Periodontology, University of Toronto.



SCIENTIFIC investigations of the teeth and their supporting tissues in relation to focal infection have revealed three main portals of paths of entry for bacteria.

1. *The Amelo-Dentinal Path:* Through destruction of the enamel in dental caries and consequent infection of the dentine, bacteria gain entrance into the pulp. In brief the process is as follows: when the acid on the surface of the enamel has dissolved out the cement-substance between the enamel rods and has filtered down through the spaces formed to the amelo-dentinal junction, decalcification of the dentine soon takes place. Shortly after the enamel-rods begin to fall out, bacteria find entrance into the fine tubules at the periphery of the dentine. The dentine is continually decalcified in advance of the growing microorganisms which easily pass along the tubules, and with their entrance into the pulp, infection of this organ takes place, and a focus is produced. In other words, with the proliferation of the bacteria in the pulp, after gaining a foothold, and with the occurrence of the reaction of the tissues, the process of infection is established. With rapid multiplication of the bacteria more extensive

areas of pulp-tissue are progressively invaded and, because of its peculiar anatomic and histologic characteristics, death of the pulp, as a rule, follows. Owing to the close relationship between the blood and lymph supply of the pulp and periapical tissues, bacteria gain access to the pericementum through the apical foramen with the production at the root-tip of definite infective lesions and foci, viz.: granulomata, abscesses, cysts, rarefying and condensing osteitis.

2. *The General Blood-Stream*: If living bacteria be carried by the blood from some primary focus to a part where the resistance is low, they frequently are able to gain a foothold and multiply. In traumatic occlusion of the vertical overloading type where the tooth is subjected to a pressure in the direction of the axis greater than it should be called upon to bear, the periapical tissues are exposed to repeated overstresses, and as Adami has pointed out, *(1) with the rendering of the tissues concerned specially liable to infection. Further, through actual tissue alterations, viz., fibrosis and vascular changes, in the periapical region, as a result of repetitions of compressural overstresses, perfect co-ordination of nutrition, vascular supply and cell activity, so necessary to health, is interfered with, and it appears reasonable that it may be attended by increased liability to infection.

In addition, as the blood-supply of the dental pulp is derived from the periapical pericementum, †(2) it follows that interference with the periapical vascular supply must have a direct bearing upon the nutrition of the pulp, with consequent lowered resistance to bacterial invasion.

3. *The Gingivo-Periodontal Path*: The term periodontium is used to designate the supporting tissues of the teeth and includes as tissue-components, the gingivæ, the pericementum and alveolar process. With the establishment of infection in the gingival tissues either at the base of the gingival crevice, or at the site of an injury to the epithelial lining of the crevice, or break

*(1) Adami and McCrae: Text-Book of Pathology.

†(2) Box, Harold Keith, D.D.S., Ph.D.: Histological and Histo-Pathological Studies of the Dental Pulp. Bulletin No. 4. Canadian Dental Research Foundation, May, 1922.

therein, this region presents a zone of sub-acute or chronic inflammation. The lesion, because of its peculiar anatomic position, obscured by the overlying gingival tissues, and through the mild nature of the inflammatory reaction, is generally unapparent clinically in the early stages. Nevertheless it constitutes a definite focus of infection. Through its extension by centripetal progress, the deeper tissues, viz., the alveolar bone and pericementum are later involved, and a true periodontitis is established.

One of the classic signs of a true periodontitis is the formation of a pocket, the result of separation of the soft tissues from the cementum. It is generally recognized that pocket formation is a complicated pathological process. Briefly, it may be described as follows: with severance of the principle fibres from the cementum, the epithelium lining the gingival crevice

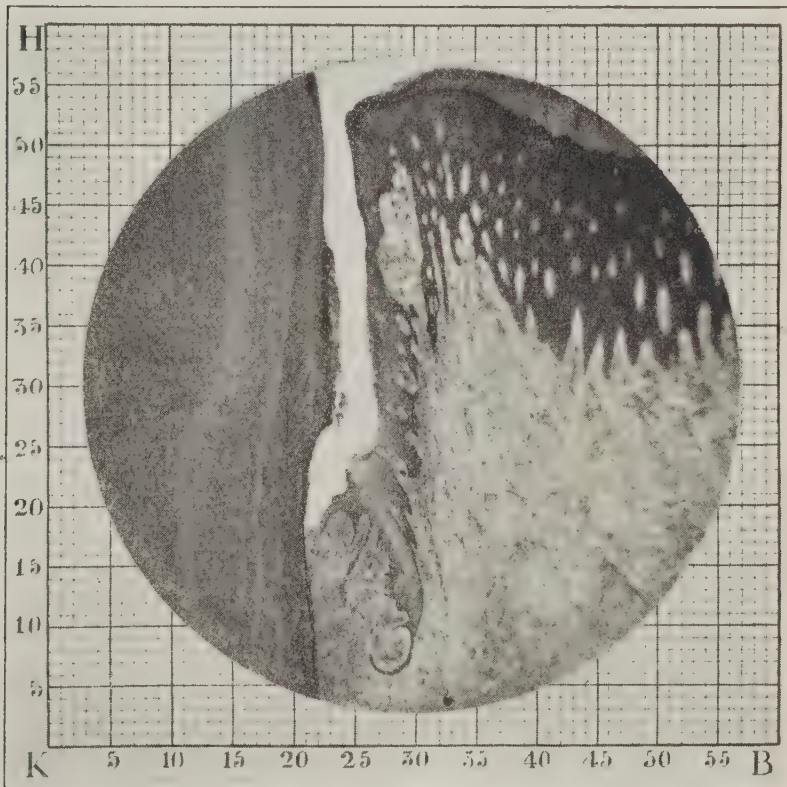


Fig. 1.-X40.—Periodontal Pocket, showing the epithelium covering the soft tissues to the pocket-base. The epithelial lining is much thinner than that of the gingival mucosa, comparable to the differences seen in tonsillar crypts.

proliferates and extends apically to cover the detached connective tissues, at the same time maintaining organic union with the cemental surface. This epithelium forms on the tooth surface a horn-like or keratinised layer which, as a rule, when separation of the soft tissues takes place remains firmly adherent to the tooth. With separation of the soft tissues, the pocket is created and it is lined to its deepest portion on the soft tissue side, with epithelium. However, with atrophy of the gingival tissues and their consequent recession, the pocket depth may be greatly lessened and in many cases is reduced to such an extent that it may be considered physiological, at least from the standpoint of maintenances of hygienic conditions. In other words, when the gingival margin is able to make parallel progress with the extension of the pocket base, it is obvious that pocket depth cannot increase. Therefore, in the last analysis, failure of the gingival tissues to

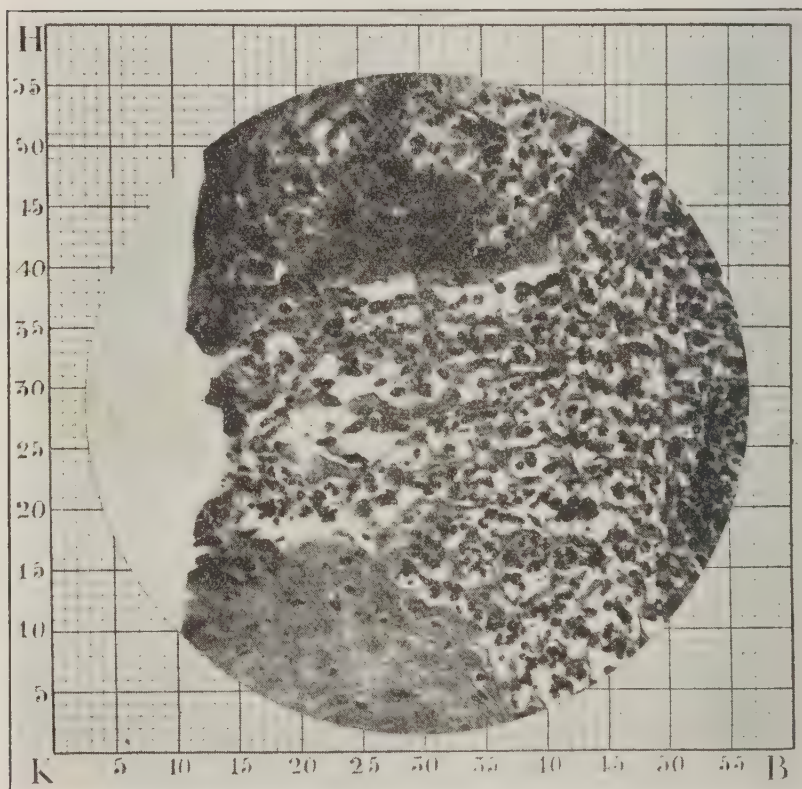


Fig. 2.-X265.—Small zone of soft tissue wall of pocket, showing a break in the epithelial lining and cellular infiltration in the exposed connective tissue.

atrophy must be regarded as a most important factor in pocket formation.

Detachment of the principal fibers is largely due to dissolution of the fiber-ends through their involvement in the progress of the sub-acute inflammatory reaction. Beneath the epithelial lining of the pocket, from its beginning to the base, cellular infiltration chiefly of the plasma cell type is marked and, with the numerous capillaries in this region, there is thus to be found a layer of granulation tissue resting upon, and supported by, the remaining fibrous tissue.

The presence of pus is occasioned by the superimposition of secondary inflammatory processes, infections from pyogenic bacteria, upon the primary non-suppurative process. These suppurative inflammations are initiated at various sites along the pocket wall where through injury, extreme thinness or breaks, the epithelium has afforded portals for the entry of pyogenic microorganisms.

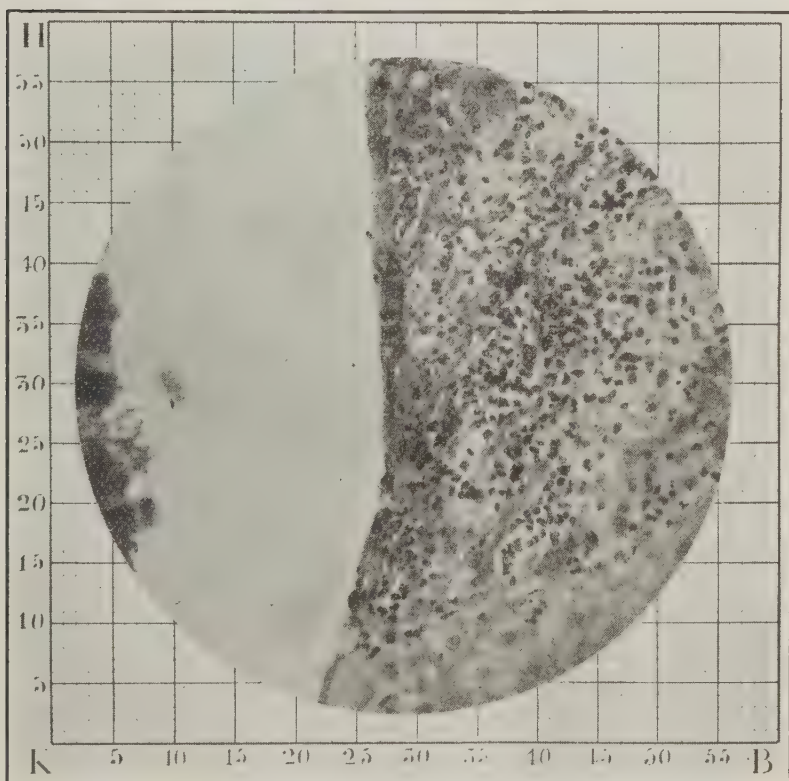


Fig. 3.-X265.—Soft tissue wall of pocket, showing capillary reaction and hemorrhage in the tissues opposite a nodule of calculus. Note also extremely thin covering of epithelium.

THE PERIODONTAL POCKET AS A FOCUS OF INFECTION.

A focus is an infected site; whether the bacteria leave that focus either by the blood-stream or by the lymphatics to reach distant sites of secondary infection, determines whether the process of focal infection is going on or not. Billings has defined a focus of infection as "A circumscribed area of tissue infected with pathogenic microorganisms." Such "Infected foci should include only those in which a demonstrable zone of reaction is present *(3)", and do not include the normal presence of bacteria in the superficial layers of the mucous membrane, between the epithelial cells and in the orifices of small mucous glands, such as Bloomfield has suggested.

Factors which interfere with the establishment of the process of focal infection are as follows:

1. An impermeable fibrous capsule

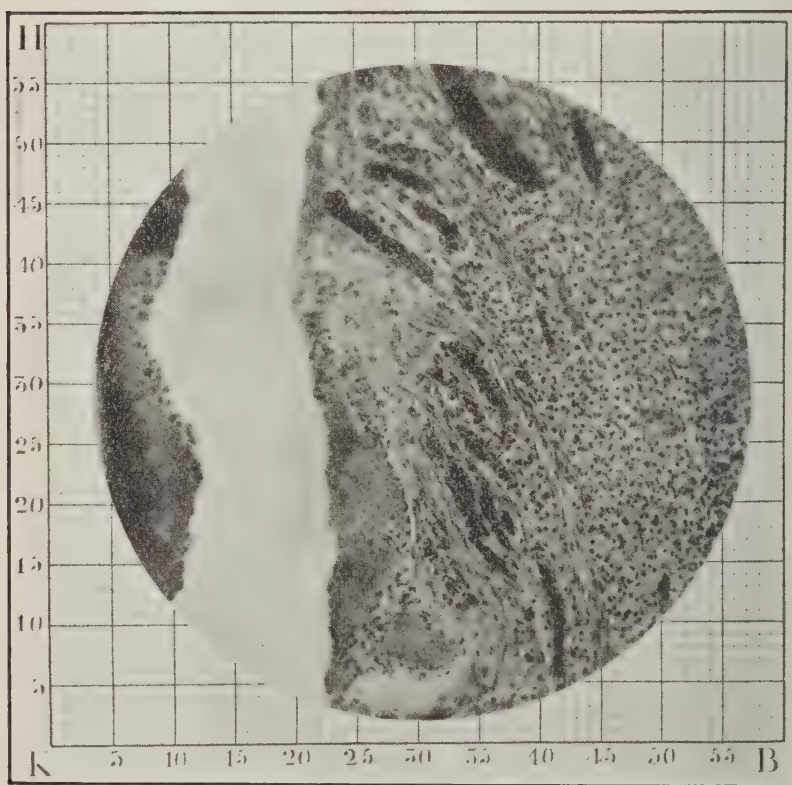


Fig. 4.-X200.—Periodontal Pocket, showing the rich capillary bed which develops opposite the irritant (calculus).

*(3) Holman, W. L., B.A., M.D., C.M.: Focal Infection and Elective Localization. Archives of Pathology, 1928.

2. A poor capillary response due to the relative inactivity of the bacteria in the focus.
3. The presence of high bactericidal substances in the blood-serum.
4. Perfect immobility of the part, which favours the healing process and lessens the opportunity for mechanical passage of bacteria into the blood-stream.

The following are conditions which make a periodontal pocket a site for focal infection:

1. The periodontal pocket is an infected focus, i.e., it is an abnormal site of bacterial implantation with definite evidence of reaction on the part of the soft tissues. The thin epithelial layer or actual breaks, pointed out previously *(4) makes this region particularly liable to direct infection from the oral cavity. Further, the

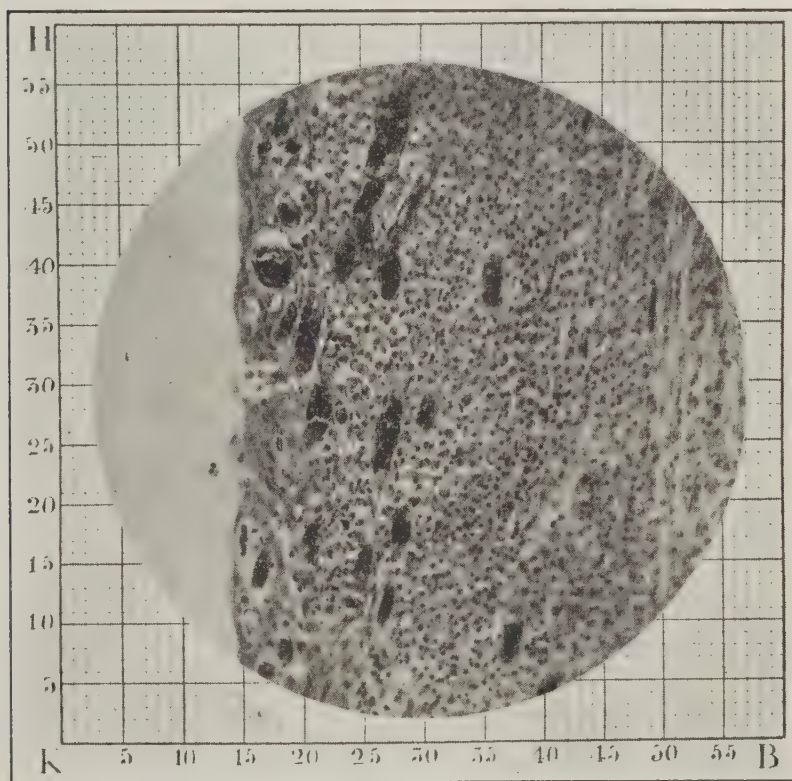


Fig. 5.-X200.—Another demonstration of capillary bed of the granulation tissue in the soft tissue wall of the periodontal pocket. Note also the thinness of the epithelial layer.

*(4) Box, Harold Keith, D.D.S., Ph.D.: Studies in Periodontal Pathology. Bulletin No. 7, Canadian Dental Research Foundation, May, 1924.

close adaptation of the soft tissues with the tooth interferes with drainage and causes stasis, and ideal cultural conditions for bacterial growth are always present.

2. Factors exist which favour the passage of bacteria into the blood-stream or surrounding tissue, viz.:

- (a) the presence of a rich capillary bed, with their thin walls, evidenced clinically by the ease with which bleeding takes place under certain conditions. This renders the passage of bacteria into the blood-stream particularly simple.
- (b) the presence of irritating conditions, such as calculus, which produce a continued capillary response in the adjacent soft tissues. There is some evidence that food-particles may also complicate the picture.
- (c) the mobility of the tooth in its alveolus, under occlusal stress, as in mastication, swallowing and nervous habits, which interferes with the healing process. This is true of mobility, for every infected region of the body. This factor of tooth-mobility is constant under normal occlusal conditions and greatly exaggerated in traumatic occlusion.

Focal Infection*

A. E. WEBSTER, D.D.S., M.D.,

Professor of Operative Dentistry, University of Toronto.



THE idea of focal infection is not new to either medicine or dentistry if one is to believe the records of dental writings. There are evidences of this knowledge centuries old. In the nineteenth century Benjamin Rush records the successful treatment of a general disease by the removal of a tooth, and Brown, a dentist of Thorold, Ontario, caused the cure of a chronic iritis in 1864 by the treatment of a cuspid tooth. These are evidences of the truth of that ancient adage that no part of the human body could be

* Prepared for the Ottawa Dental and Medical Societies.

detrimentally affected without its having an influence on all other parts of the body.

It is this broader aspect of focal infection which has been in the minds of well educated physicians and surgeons for centuries that is gaining the attention of dentistry during the past few years. One would think from reading dental literature and following the actions of some physicians that the only cause of nearly all diseases was focal infection, or still more narrowly speaking, teeth with non-vital pulps.

Not a few writers seem to get all muddled up when discussing focal infection and oral sepsis. There is no reason for using these terms interchangeably and there are good reasons for separating them. Oral sepsis is what the dentist calls a dirty mouth. It has accumulations of food, calculus, decayed teeth, sordes, bacteria and dead epithelial tissue. Focal infection is a circumscribed area of bacterial infection from which organisms or their poisons pass into the lymph or blood stream. Oral sepsis usually has its effects in and adjacent to the mouth, often of an acute character as well as a chronic effect on the alimentary tract. Hunter was the first to point out that the anæmias are always associated with a dirty mouth and Steadman has more recently called attention to the association of cancer of the intestinal tract with oral sepsis. These conditions do not seem to be intimately associated with infections around the apices of teeth as is found in such general diseases as rheumatism, arthritis, endocarditis, etc.

Surgeons and pathologists of the recent past recognized focal infection as above defined, but more recently there is a tendency to broaden the meaning of the term to include poisons circulating in the blood of bacterial origin. In fact, the authorities consulted do not make it clear that the systemic effects are from bacteria floating in the lymph or blood or that it is the poison produced in the focus that does the damage.

Some of the most careful writers on the subject of focal infection such as Billings, Gurd and Kolmer, group infections, first those which gain ingress to the body and at once become active diseases, and second, those which are now under discussion which produce a localized and confined infection without symptoms; from these preliminary or localized infections microorganisms may gain access to the lymph or blood stream and at other points cause another focus of infection. This latter is called focal infection.

Billings says these primary foci of infection may occur any-

where in the body, the most common location being teeth, jaws, tonsils, mastoids, and other accessory sinuses, but it must not be forgotten that infections of primary origin often occur in fingers, toes, appendix, gall bladder, genito-urinary system, air passages and skin. Too often dentists, and especially physicians, think of the primary infection as coming from the teeth or tonsils only. Recent observations by Duke, Hatton, Rickert, McDonagh and some English authorities would indicate that apical ends of teeth and pulps of vital undecayed teeth are often secondary seats of infection.

It is well to look for oral sepsis in children, adolescents and old people, if many teeth remain, and for focal infection from teeth in middle life and tonsils of the young. Rosenow has said that tonsillar infection is nearly always secondary to oral sepsis.

Clinicians have often observed that after finding a focus of infection and completely eradicating it the patient has not been materially improved. In such cases it has been advised to re-open the wound and do a more thorough operation. The explanation of such failures might well be that there might be one or more secondary infections still distributing bacteria or poisons, or that the tissues or essential organs are so reduced in function that months may be required for recovery, or no recovery can take place. Too much hope must not be held out for the cure of a chronic disease by the removal of a long standing primary focus of infection. Thus primary infections should be treated before secondary infections occur and before essential organic tissue is destroyed.

Dentists have often observed an acute periodontitis following the insertion of a gold foil filling in a tooth with a non-vital pulp in which the canal had not been opened at the time of operation. Physicians and surgeons examine accident patients very carefully for focal infections. What is the explanation? There may be many virulent organisms present at the point of traumatism or in a focus of infection which only need the waste products of dead tissue to start an abundant growth. The lesson is to avoid traumatisms in the presence of focal infections or oral sepsis. This is especially true in root canal treatments.

Physicians have observed how frequently their patients develop acute local periodontitis, or acute pulpitis, when the symptoms of an acute infectious disease have subsided. Then again older patients often begin an illness with an acute alveolar

abscess, then a tonsillitis or mastoid and finally a pneumonia. Usually these are secondary foci of infection or due to oral sepsis.

Hatton thinks the condition of the oral cavity is an index of the physical condition of the patient and that no essential organ is alone damaged by disease.

From what has been said and chiefly from what can be inferred, dentistry is plainly at the parting of the ways. It must take full responsibility for knowing the same fundamental subjects as the physician, if he intends to consult with him in determining the treatment and prevention of such diseases as may be caused by focal infection, or he must take the other alternative of being directed what to do by some one who knows these things. The dental educational institutions of this continent have taken full responsibility and added sufficient time to not only teach all the necessary fundamentals, but also to give instruction in treatment.

It must be plain to anyone who knows that chronic infections about the root ends of the teeth are the cause of such general and fatal diseases as endocarditis, cancer, rheumatism and anæmia that he must, for the good of his patients, make a careful study of the whole problem, in consultation with a physician.

To come close in to the subject and apply what has been outlined there can be little of a very positive and definite nature stated. Among those who have made a study of the subject, there is no difference of opinion on the broad principles of getting rid of points of infection which are known to be detrimental to health, but there are honest differences of opinion as to the presence of infection in rarefied areas at root ends of teeth and as to the methods of getting rid of such infections, or the consequence of such infection.

In general, what determines the removal or retention of any tooth in the mouth is the health of the patient and the condition of the periodontal membrane.

λ

We have laid down the positive rule, which admits of a very few exceptions, that all patients suffering from active syphilis, tuberculosis, anæmia, rheumatism, endocarditis, diabetes and acute eye affections must not have left in their mouths any point of infection even if it involves the loss of every tooth. On the other hand, robust health, patients of good family history, may have many or all such infected teeth,

with a good periodontal membrane, treated with great comfort and benefit.

If we could but remember that nature tends towards recovery in every interference with her processes. We have all observed the general symptoms of the acute alveolar abscess subside and the chronic abscess follow with no symptoms, then comes the granuloma, then the cyst which is sterile. If such things happen by nature unaided, it indicates that with our assistance such chronic infections will recover if we leave tissue enough to retain a useful tooth.

PROBLEM OF DIAGNOSING A FOCAL INFECTION.

To determine if a particular tooth is the cause of a particular disease requires all the skill and experience of the best trained men in medicine and dentistry. As for positive knowledge there is none. Hunter, Steadman and others have noticed that practically all patients suffering from pernicious anæmia have oral sepsis. Then they reason that oral sepsis is the cause. Remove such a tooth, the patient feels better and a cure is proclaimed. The cured cause is the sure refuge of the quack.

To decide such cases, the dentist and physician must meet in consultation. The physician brings to the problem the family history, personal history, history of the present complaint, his general medical experience and practise and his responsibility for the general treatment of the case. The dentist brings to the problem the dental history, carefully tabulated examination finding with an opinion of the extent of the effect of the local conditions. If the severity of the symptoms demand immediate radical action, removal of the tooth may be advisable. After such a conference, the patient will get the best advice.

It must not be thought that extraction of a tooth is the only means of getting rid of apical infection in either acute or chronic cases. It is many times thought to be unwise to extract in acute fulminating cases but to open a window opposite the apex and provide the maximum of drainage with the minimum of exposure of absorbing surface.

In chronic cases, where little if any of the root apex is involved, cleaning out of the canal and thorough mild medication will stimulate a complete recovery. In such cases as have exposed or destroyed a small portion of the periodontal membrane then the surgical cleaning of the root end and proper medication will bring about a fairly healthy condition in a normal patient.

Report of Dentistry in Canada and United States



IN the Twenty-Second Annual Report of the President of the Carnegie Foundation for the Advancement of Teaching, which has just come off the press, the following paragraphs, among others, written by Dr. Wm. J. Gies, were included:

IMPORTANCE OF HEALTHY TEETH AND OF THE PRACTICE OF DENTISTRY.

There are about 70,000 dentists in the United States and 4,000 in Canada, and approximately twice that number of physicians. During 1925, in the United States, 326 manufacturing establishments made dental goods, exclusive of instruments and machinery, valued at \$38,769,049, including \$5,947,729 for artificial teeth. In 1924, of the 135,640 officers and men in the United States Army—who as a group are presumably among the healthiest persons—112,507 were treated for dental disabilities. The teeth are more apt to become defective or diseased than any other part of the body. Disease germs that pass through decayed teeth, or alongside of disordered teeth, are frequent causes of such serious and common maladies as rheumatism, kidney trouble, and heart failure.

Prevention of dental ailments, treatment and cure of dental disorders, and artistic placement of comfortable and sanitary artificial substitutes for parts of deficient teeth, or for teeth that have been removed, are included in the practice of dentistry, which requires not only adequate medical knowledge, but also unusual mechanical skill and esthetic insight. The most advanced development of dentistry has been attained in the United States and Canada, where it is highly organized and legally established as an independent profession. Physicians are not trained to practice dentistry, and seldom give attention to dental conditions. For the professional education of dentists there are now forty-two dental schools in the United States and five in Canada, nearly all of which are contained in leading universities. Proprietary dental schools have ceased to be acceptable in Canada, and only two survive in the United States, where there are also five proprietary medical schools.

Prevention of dental deficiencies, especially in children, is the most urgent general responsibility of the dental profession.

In 1918 it was said by a Joint Committee of the National Education Association, and the American Medical Association, that of 22,000,000 school children then in the United States "11,000,000 to 16,000,000 had defective teeth, and all defective teeth are more or less injurious to health." These deplorable conditions continue. In most children, for reasons that adequate research would doubtless fully reveal, the enamel protective covering of the teeth is imperfect in places, and decay and loss of teeth soon follow. If, however, these defects are noted promptly after the emergence of a tooth, and the deficient portions removed and properly replaced by gold fillings, before decay sets in or shortly afterward, the repaired tooth may be preserved indefinitely, not only in position but also in good health. Growing realization among dentists and the public of the import of "preventive" dentistry, and of the lifelong benefits of special dental care for children, has quickened interest in efforts to obviate dental defects. The present shortage in the number of dentists, and the increasing cost of dental service, have also helped to bring about "the creation of a growing number of public or semi-public agencies, chiefly under the auspices of educational health organizations, for the wider extension of dental service, especially to children of pre-school age, to children in public schools, and to children of parents who are financially unable to pay the conventional fees of the private practitioner. . . Benefactions such as the Forsyth Dental Infirmary for Children (Boston) and the Eastman Dental Dispensary (Rochester), associated with medical and dental schools and hospitals, are needed in all parts of this country and Canada for the solution of health problems that involve the cooperation of dentistry."

RELATIONS BETWEEN MEDICINE AND DENTISTRY.

The Bulletin uses the term "health service" to designate collectively all special efforts to maintain or to promote health, to prevent disease, to restore health by treatment and cure of sickness, and to ameliorate the discomfort, distress, and disability of incurable ill-health. Among the most important of such agencies, besides medicine and dentistry and their specialties, are nursing, public health administration, education for the prevention of disease, and pharmacy.

The public suffers when any group engaged in health service belittles the sincere efforts of another. In North America, dentistry, separately established when it was rejected by medical

schools as unimportant, has been practised primarily as a mechanical art concerned chiefly with measures of repair and artificial replacement. At most medical schools there is little or no serious instruction on dental disorders, and the students acquire the prevailing medical unconcern for dentistry. At dental schools, chiefly because of indifferent co-operation by medical faculties, the students receive inadequate instruction in oral medicine. Antagonism between medicine and dentistry cannot be explained on any basis of public interest or advantage, and has no justification in any sentiments that are worthy of respect, for both professions are agencies for health service and cannot render it faithfully on any other conditions than those of earnest and effective co-operation. With growing understanding that dentistry is primarily health service, and quite as important as some of the branches of conventional medical practice, traditional disharmonies should rapidly be replaced by mutual respect and helpfulness in the interest of better service for the patient.

Although the medical profession has not been actively interested in the prevention of dental diseases, dentists have set an example in important health service that physicians may well follow. For many years dentists have had the active co-operation of their patients in periodic examinations for the detection and treatment of dental disorders in their incipency, and for the repeated application of measures intended to prevent or delay the development of disease. For children, in whom most dental abnormalities and defects may be arrested, cured, or corrected, the importance of this precautionary procedure cannot be overstated. These desirable efforts in private dental practice exemplify an ideal of health service—to keep people well—that has not yet become general among practitioners of medicine. The extraordinary success of the medical profession in the control or prevention of many communicable diseases, whereby multitudes have enjoyed freedom from pestilence, emphasizes the lack of precautionary concern in private medical practice.

NEED FOR IMPROVEMENT IN EDUCATION FOR HEALTH SERVICE.

There is need for improvement in the quality of teaching in medical schools and for a reorganization of their programme of study. The medical curriculum of to-day is essentially that

of fifty years ago overlaid with numerous scientific and clinical specialties. The load upon the student has become almost unbearable and the fundamental sciences quite detached from their applications. The medical curriculum should be reconstructed from the standpoint of practice rather than theory, and its redundancies eliminated, so that the student may be led into technical knowledge largely through its applications. It should be so rearranged and simplified that it could be presented in reasonable time, taught effectually, and assimilated by the medical students.* These opinions apply also to dental education.

* * * *

FINANCIAL SUPPORT OF DENTAL EDUCATION.

Although nearly all of the existing dental schools are integral parts of universities, few of them have received adequate financial support. In 1924-25 only six dental schools in North America had current income from endowment, which averaged less than \$9,000 for the six schools, and about \$1,000 for all of the schools. With a few exceptions the universities have failed to impress upon the public the importance of this need, while millions have been obtained to develop the medical schools. The recently announced inability of the University of Cincinnati and of Tulane and Vanderbilt Universities, because of lack of funds, to continue their dental schools, although their medical schools are among the best, brings this national predicament of dentistry sharply to public attention. In order to improve the practice of dentistry as an important division of health service, the dental schools must have a much larger number of whole-time teachers, better equipment, more useful libraries, special means for research,

* In a published address to the students in a university medical school, a member of the Council on Medical Education, referring to present deficiencies, recently said: "In a certain school, the coagulation of the blood was taught thirteen different times to a single class of students, with some little difference each time. . . . If we could have not more time for the curriculum, but a more complete and intelligent use of the student's time without too much needless repetition, we could go much further in our undergraduate curriculum. . . . We have had [are having?] a hard time in the medical course in getting rid of the operators and of the specialists who want to stress the refinements of their specialties. There is enough to learn without this in the ordinary routine work of medicine and surgery in the undergraduate course. . . . Success in medical practice does not depend on how much you know. Success depends on how much you can apply to the particular person who comes to you seeking relief. . . . Medicine is throwing off outworn facts, and ten years from to-day you can no longer depend on what you consider complete at the present time."

and improved facilities in general, which cannot be provided without generous public assistance.

Quoting again from the preface of the Bulletin: "The dental school is one of the most important of these agencies [for the training of a qualified body of public health servants] . . . The facilities for the education it seeks to offer cannot be furnished on a commercial basis. It must have generous financial help, such as has been accorded in the last ten years to many of our medical schools, if it is to carry out its duty to the public health service. There is to-day no more direct method by which the public health can be served than to enable the universities to place their dental schools in a position to give the kind of education for which the world stands in need."

DENTISTRY AND DENTAL EDUCATION IN CANADA.

The main features of dentistry and dental education in Canada and in the United States are essentially the same. There has been a free international exchange of practitioners, and of professional associations and courtesies. The five existing Canadian dental schools are integral parts of universities, which do not regard dentistry as a branch or specialty of the practice of conventional medicine, thus departing from the custom in some of the European countries, but agreeing with conditions in the United States. The first of the Canadian schools was founded in 1875, thirty-five years after the establishment of the original dental school in Baltimore. The total number of graduates of all the Canadian schools (1876-1925) is 3,596, an annual average of 72. The graduates of the American schools number approximately 85,000, an annual average of 1,000.

NUMBER AND DISTRIBUTION OF DENTAL PRACTITIONERS.

In North America the number of dentists has steadily been increasing on a rising plane of requirements in both the preliminary and professional phases of dental training. In the United States the number of dentists has been growing much more rapidly than the general population, but it is still inadequate and the distribution is very irregular. The proportion of physicians and dentists to the population, in the United States and Canada (in 1925), is shown by these ratios:

	Dentists to population	Physicians to population	Dentists to physicians
United States	1:1,758	1:767	1:2.3
Canada	1:2,510	1:1,025	1:2.4

ORAL HEALTH for March, 1928

The following census figures indicate that an increasing number of women are engaging in dental practice in the United States:

1870—24	1890—337	1910—1,254	1927—2,300 (estimated)
1880—61	1900—807	1920—1,829	

The special capacity and opportunity of women to promote "preventive dentistry for children," under conditions of growing public concern and appreciation, should attract much larger numbers to this field. Women are admitted to nearly all dental schools in North America, in which, in 1926-27, approximately 200 were enrolled.

* * * *

RESEARCH.

There is increasing need for careful and prolonged research in various fields of dental and oral disease, looking toward the prevention of prenatal development of defects in teeth as well as the prevention of dental disorders at all ages. This means systematic and co-ordinated study by competent persons under skilled supervision and in adequate laboratories and libraries. Infections of the teeth are often the primary cause in numerous types of disease. While this has been recognized for some time, there is great uncertainty as to the most effective treatment in many cases. These problems are relatively new in medical study. Large sums can justifiably be spent in research in this field if placed in competent hands. Perhaps in no study of disease is there a greater opportunity to benefit mankind than in systematic research in the cause and treatment of the disorders that arise through maladies of teeth or ailments that affect the tissues of the mouth. Such research is dependent primarily on the spirit and ability of those engaged in it, but with the best spirit and the highest training there must be had facilities that only money can supply. Those who have to do with dental education and dental practice are bending their energies honestly and heartily to the upbuilding of their profession as a health service. It would be a misfortune to human progress if, at such a time, generous minded men, who desire to help their fellows, should neglect to co-operate in the financial support necessary to make normal progress possible.

The Canadian Dental Association



THE Canadian Dental Association will meet in conjunction with the Ontario Dental Association at the King Edward Hotel, Toronto, June 4-7. Programme of the Convention will be published later.

It is expected that important matters in connection with the Constitution will come before the business meeting of the Association on Monday, June 4th.

The preliminary meetings of the Provincial Delegates will open on Saturday morning, June 2nd, at the King Edward Hotel.

J. STANLEY BAGNALL,
Secretary, Canadian Dental Association.

34 Larch St., Halifax, N.S.

Dr. Switzer to Visit Western Canada



THE University of Toronto has completed arrangements for Dr. W. G. Switzer, Associate in Clinical Dentistry of the Faculty of Dentistry, to visit the local dental societies of the larger centres of Western Canada and present demonstration-clinics on Impression Taking and Full Denture Prosthesis. Dr. Switzer's trip will take about a month and a half, as he will leave Toronto on Saturday, March 31st, and return on Saturday, May 12th. The local societies have cordially co-operated in arranging for meetings during Dr. Switzer's stay in the following centres:

Winnipeg: Monday and Tuesday, April 2 and 3.

Brandon: Wednesday noon till Friday noon, April 4 and 6.

Regina: Friday evening till Monday afternoon, April 6 to 9.

Moose Jaw: Monday afternoon till Wednesday noon, April 9 to 11.

Swift Current: Wednesday afternoon to Friday afternoon, April 11 to 13.

Lethbridge: Saturday afternoon to Tuesday noon, April 14 to 17.

Calgary: Tuesday afternoon to Thursday afternoon, April 17 to 19.

Victoria: Monday till Wednesday noon, April 23 to 25.

Vancouver: Thursday to Saturday, April 26 to 28.

Edmonton: Monday and Tuesday, April 30 to May 1.

Prince Albert: Wednesday noon to Friday afternoon, May 2 to 4.

Saskatoon: Friday afternoon to Monday night, May 4 to 7.

Yorkton: Tuesday morning till Wednesday afternoon, May 8 and 9.

GENERAL PLAN OF PROGRAMME FOR LOCAL SOCIETIES.

For each society the work will include the taking of full upper and lower impressions and bite, and mounting on an anatomical articulator. The case will be carried toward completion so far as time permits.

At a later session Dr. Switzer will, if desired, correct occlusion in a case where dentures have been made with balanced occlusion and have been worn by the patient, or, in lieu of this, will give a table clinic on the setting up of teeth.

Should any society prefer not to carry impression case beyond the bite stage, Dr. Switzer will spend the balance of the time upon some other phase of prosthesis.

The American Dental Society in Europe



THE forty-seventh annual meeting of the American Dental Society of Europe will be held on July 30th, July 31st, and August 1st, at the Palace Hotel, Brussels, Belgium.

J. A. HOLDEN, *Hon. Sec.*

Dental Health Service



TO view a neglected mouth, realizing its need; to restore that mouth, watching from week to week its development into a state of glowing health and efficiency by the combined effort of patient and dentist is to experience the height of dental service, and will afford more pleasure and satisfaction to the dentist, than the most beautiful and perfect gold inlay or prosthetic replacement he ever achieved.

Take one such case, carry it through to complete recovery; if you are not convinced, then dentistry holds no charm for you. *You do not belong*,—DR. M. C. BRADLEY.



British Columbia—W. J. BRUCE, D.D.S., 404 Birks Bldg., Vancouver.

Alberta—JOHN W. CLAY, D.D.S., 914 Herald Bldg., Calgary.

Saskatchewan — O. W. PARKER, D.D.S., Imperial Bank Bldg., Regina.

Manitoba—W. W. WRIGHT, D.D.S., 767 Warsaw Ave., Winnipeg.

Maritime Provinces—J. STANLEY BAGNALL, D.D.S., 34 Larch Street, Halifax, N.S.

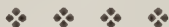
Ontario—LIEUT.-COL. W. G. THOMPSON, 46 Sun Life Bldg., Hamilton.

STANLEY G. McCAUGHEY, D.D.S., 384 McLaren St., Ottawa.

Quebec—M. L. DONIGAN, D.D.S., 127 Stanley St., Montreal.

PAUL GEOFFRION, D.D.S., 308 Sherbrooke Street, Montreal.

Provincial Editors will appreciate receiving from all local societies copies of papers, society proceedings or personal notes, for publication.



MARITIME PROVINCE.



H. MURPHY, M.D.C.M., F.A.C.S., gave an interesting talk before the last meeting of the Halifax Dental Society, on infections and new growths in the oral cavity. The talk was of an informal character and contained a number of interesting case reports. He prefaced his remarks with an interesting description to his introduction to dentistry when he held the smoky kerosene light, while the village blacksmith extracted teeth with an old Turn-key, which Dr. Murphy presented to the Dental museum of Dalhousie.



Amendments to the existing dental Acts are to be presented before the Legislative Assemblies of New Brunswick and Nova Scotia now in session.

J. S. B.



QUEBEC.

SOCIETE DE STOMATOLOGIE DE QUEBEC.



TESTIMONIAL dinner was tendered to Dr. E. Dorval, December, 1927, under the auspices of the Societe de Stomatologie de Quebec, in recognition of his valuable and untiring efforts for the advancement of the dental profession, financially, and in the

special development of the subject of cleft-palate restorations. The dental profession of Quebec at the same time commemorated the dental jubilee of Dr. Dorval, who has completed fifty years of practice.

Dr. A. Oery, President, paid to Dr. Dorval the respects and good wishes of the entire dental profession of Quebec City. Dr. E. Dubeau, Dean of the Faculty of Dentistry of the University of Montreal, was present and brought to Dr. Dorval the best wishes of the dental profession of Montreal, and the Certificate of Dental Surgeon "Honoris Causa." This initiative from the University of Montreal was very much appreciated by Quebec.

Among other speakers were included Drs. S. Gandreau, A. Langlois, Ph. Hamel, A. Dion, Emile Beaubien, J. Reid, J. G. Landry, J. E. La Forest, and J. La Roche.

Dr. Dorval, in replying to his confreres, referred to many interesting anecdotes and incidents of his first years in dental practice. This happy party was brought to a close by several popular songs.

J. DALLAIRE.

* * *

SOCIETE DENTAIRE DE MONTREAL.



HE regular monthly meetings of the Societe Dentaire de Montreal were held on January 12th and February 14th. Dr. J. A. Nolin gave a paper entitled "What do we know about Enamel?" and Dr. Paul Geoffrion on "The Influence of Food on Malocclusion."

At the March meeting Mr. Russel Copeman of Montreal, will give a paper and clinic on "Removable Bridgework and Attachments."

P. G.

* * *

MOUNT ROYAL DENTAL SOCIETY.



THE following is a list of the clinics and lectures given before the Mount Royal Dental Society during the season of 1927-8:

Dr. W. E. Cummer, Toronto, Ont., gave a clinic on "Prosthetic Denture Service," on Oct. 14th, 1927.

Dr. M. Diamond, New York, N.Y., lectured on "Dental Anatomy—A Graphic Technique for Tooth Reproduction," on Oct. 29th, 1927.

Dr. A. S. Solomon, Montreal, Que., gave a table clinic on

"Peeso's System of Removable Bridgework," on Nov 29th, 1927.

Dr. J. Schroff, New York, N.Y., gave a clinic on "Oral Surgery," and lectured on "Radiographic Interpretations," on Dec. 23rd, 1927.

Mr. Russell A. Copeman, Montreal, Que., gave a table clinic on "Chayes' Removable Bridgework," on Jan. 30th, 1928.

Dr. Paul Shapiro, New York, N.Y., will give a clinic and lecture on "Full Denture Prosthesis," introducing his method of double tray impression method in plaster for full dentures, on March 16th, 1928.

L. S. E.

* * *

ONTARIO.

OTTAWA DENTAL SOCIETY.



AN event which may some day be labelled historical, was the dinner on January 16th, at the Chateau Laurier, at which the Ottawa Medico Chirurgical Society was the guest of the Ottawa Dental Society.

To say it was a huge success is to use a hackneyed phrase to express a plain truth. There was an attendance of over two hundred and twenty-five, there were more medical men in attendance than the Medico Chirurgical Society has ever had at any of its meetings; there were out-of-town dentists present from as far west as Belleville; there was exhibited a real cameraderie, and an evidence of the desire on the part of our medical brethren to learn something of dental pathology, and our viewpoint on focal infection.

While relations between the two branches of the profession in Ottawa have always been most cordial, the meeting made an advance step in co-operation in diagnosis and treatment, and good results have already been felt by the writer.

Undoubtedly the reputation of the essayist was the reason for the large attendance, and *Dr. A. E. Webster* certainly "rose to the occasion"! He has seldom, if ever, been heard to better advantage; entertaining and enlightening with a magnificent grasp of his subject, he held his audience rapt for nearly two hours—our beloved teacher at his best.

Nor did the discussion suffer by contrast; it was opened by *Dr. Campbell Laidlaw*, who rose from a sick bed to bring

his masterly knowledge of pathology to us. Dr. Laidlaw was followed by Dr. R. K. Paterson, consultant in medicine, who brought a very intimate knowledge of dental conditions. Dr. Stuart Evans also spoke briefly on the connection between focal infection and thyroid disturbances.

The dental aspect of the discussion had been safely entrusted to Dr. S. W. Bradley and Dr. W. C. W. Coupland, and dentistry knows what these men can do.

Dr. S. S. Davidson moved a vote of thanks to the essayist; to those who took part in the discussion; and congratulated the President, Dr. Lorne MacLachlan; the secretary, Dr. Ira W. Hamilton; the executive of the Ottawa Dental Society for the conception of the idea and successful culmination of the meeting.

During the dinner we were entertained by vocal selections from Dr. Percy Nesbitt and the Ottawa Dental Society double quartette.

* * *



R. KREUGER, of the Faculty of Dentistry, University of Toronto, delivered a very excellent paper on "The Treatment of Root Canals," on Monday, February 20th, before a good attendance of the Ottawa Dental Society. The paper was discussed by Drs. H. Winters, O. Martin, and several of the younger men, among whom were W. S. Sheridan and Geo. Hutchison. The paper was described as sensible, practical, and very human, and should prove of great benefit.

* * *

Dentistry is represented in the House of Commons this year by Dr. O. B. Price, of West Moreland, New Brunswick, and in officialdom by Col. C. N. Schnarr, D.D.S., who practised dentistry for twenty-six years in Kenora, and who is now private-secretary to the Hon. Peter Heenan, Minister of Labour.

* * *

It might be of interest to readers of ORAL HEALTH to give some details connected with the letter from Dr. John E. Thompson, published in the January issue.

Dr. Thompson, it will be remembered, graduated from the R.C.D.S. and University of Toronto, in 1908, and went to the West China Mission of the Methodist Church the following year. He served in the Dental Hospital of the Mission

in Chengtu for upwards of ten years, and later served in the Faculty of the West China Union University.

When the course of the present disturbed conditions in China made the evacuation of the whites necessary, Dr. Thompson went to Japan and decided to commence practice. Having left his sheepskin in the hasty exit, he asked Dean Seccombe for a copy of his certificate and that it bear the signature and seal of the Governor-General of Canada.

When it was presented at the State Department it was found that a certain course of action was necessary. Consequently it was sent back to Toronto where the signature of the Dean of the Faculty of Dentistry was authenticated by the Registrar of the University, and his and others successively and progressively authenticated on an ascending scale of authority by the President of the University, Chairman of Board of Governors, Provincial Secretary, and Lieutenant-Governor of Ontario. It was then sent back to Ottawa where these signatures were authenticated by the signature and seal of the Governor-General of Canada. These papers were then vised by the Japanese Consul-General, Mr. Tomii.

The failure of these measures to secure recognition for Dr. Thompson, being noted in ORAL HEALTH, a motion was carried at the Ottawa Dental Society that the secretary be instructed to present the facts to the Department of State for External Affairs. This being done, the Under-Secretary, Dr. O. D. Skelton (formerly of Queen's University), has taken the matter up with the Japanese Government, and we hope to be able to report on his success in a later issue. It is apparent that the Canadian Universities are unknown to officialdom of Japan, and the acceptance of Dr. Thompson's qualifications would be a step in further recognition of Canadian Universities.

S. G. McC.

* * *

ALBERTA.



THE following appointments were made at the recent meeting of the Board of Directors of the Alberta Dental Association:—

Provincial Representative to the Dominion Dental Council, Dr. Leslie T. Allen, Lethbridge.

Representative to the Senate of the University of Alberta, Dr. A. B. Mason, Edmonton.

Delegate from Alberta to the House of Delegates of the Canadian Dental Association, Dr. John W. Clay, Calgary.

* * *

At the same meeting held in Calgary the Board decided to assist the Calgary Dental Society in financing the proposed visit of Dr. Gysi, of Zurich, Switzerland, and Dr. George Wood Clapp, of New York, to the city of Calgary next October. This splendid opportunity for advanced knowledge in dental prosthesis will be available to all Alberta Dentists and other visiting dentists, without fee.

* * *

It is well to remind Alberta men of this year's extension work of the University of Toronto, Faculty of Dentistry. Dr. W. G. Switzer has been chosen to clinic in a number of cities in the West, including Lethbridge, Calgary and Edmonton. His work will cover several phases of Prosthetic Dentistry from an extremely practical standpoint. The time of his visit (the latter half of April) should be kept in mind.

This opportunity is tendered us as part of a policy of the dental department of spreading newer dental knowledge to the less recent graduates. As such it will be of value to all of us.

The generosity of the University of Toronto in sending a man of Dr. Switzer's teaching ability, to the province of Alberta, merits our appreciation, and he can be assured of a hearty welcome.

* * *



IN the West, where most things have grown from small beginnings within the last few years, there is a fascination in watching the birth of new ideas and their rapid growth to maturity.

One such blazing of a new trail was the holding of a mid-winter clinic on January 30th, by the Edmonton Dental Society. A very excellent programme was put on by members of the Society. About sixty-five members of the profession representing the Edmonton Society and surrounding parts attended.

Dr. H. W. deRenzy, of Calgary, who is an authority on mechanical restoration of cleft palate cases, presented a very interesting and instructive clinic. Carefully prepared models of actual cases in the various stages of manufacture were shown.

The whole programme was one of exceptional merit. Those

who attended pronounced the clinics most helpful and practical, and the work of the Clinicians of high calibre.

The full programme of clinicians and their subjects was as follows:—

Inlay Group; Drs. Bulyea, Gerneroy and Thurston.
Prosthetic Group; Drs. Gilchrist, Hope and Mercer.
Dr. DeRenzy; "Obturator for Cleft Palate."
Dr. Janes and Dr. Bradley; "Jacket Crown Preparation and Harper's Amalgam Technique."
Dr. M. A. McIntyre and Dr. Scott; "Cryptex Restoration and Fracture Case."
Dr. Landing; "Gold Wire Retentions in Inlays."
Dr. Leslie McIntyre; "Pin Inlays."
Dr. J. G. Roberts; "Copper Amalgam in Root Canals."
Dr. Jas. McPherson; "Difficulties in Conductive Anaesthetics and Extractions."
Dr. Dodds and Dr. McDonald; "Impressions and Orthodontia."

At six-thirty, a banquet at the Macdonald Hotel, under the chairmanship of Dr. R. S. Decker, President of the Edmonton Dental Society, was enjoyed by all. The principal address was delivered by Dr. Snadden, of Edmonton. Dr. deRenzy was presented with a Parker pen and pencil set, as an appreciation of his work in preparing and giving his clinic.

The meeting, which closed with a dance in the Palm Room, was pronounced a success by all, the executive arrangements being excellently taken care of by a committee composed of Drs. G. A. Gerneroy, W. S. Hamilton and Leslie McIntyre.

J. W. C.

Dental Association of Nova Scotia

OFFICERS, 1927-28.

President.—Dr. T. Melanson, Yarmouth.

1st Vice-President.—Dr. J. P. Parker, Sydney.

2nd Vice-President.—Dr. F. W. Johnson, Halifax.

Secretary.—Dr. J. Stanley Bagnall, Halifax.

Auditors.—Dr. S. G. Ritchie, Halifax; Dr. G. A. Chudleigh, Halifax.

Executive Committee.—Dr. T. Melanson, Chairman, Yarmouth; Dr. J. P. Parker, Sydney; Dr. F. W. Johnson, Halifax; Dr. J. T. Lebbetter, Sydney; Dr. J. Stanley Bagnall, Secretary, Halifax.

Dominion Dental Council Representative.—Dr. George Kerr Thomson, Halifax; Dr. S. G. Ritchie, alternate representative, Halifax.

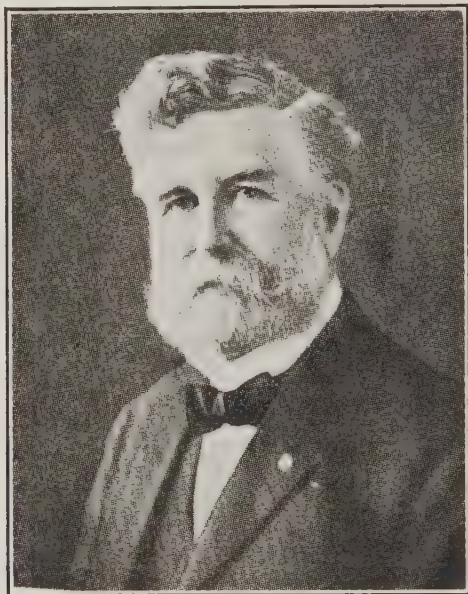
Delegates to Canadian Dental Association.—Dr. A. W. Faulkner, Halifax; Dr. S. G. Ritchie, Halifax.

Representatives on the C.D.A. Executive.—Dr. W. C. Oxner, Halifax; Dr. W. H. H. Beckwith, Halifax.

Dental Board.—Dr. W. H. H. Beckwith, President, Halifax; Dr. W. W. Woodbury, Vice-President, Halifax; Dr. E. S. Allen, Yarmouth; Dr. J. P. Parker, Sydney; Dr. J. G. McDonald, New Glasgow; Dr. A. W. Faulkner, Halifax; Dr. H. C. MacIntosh, Glace Bay; Dr. G. Ross Hennigar, Secretary-Registrar, Halifax.

Executive of Oral Hygiene Education Committee.—Dr. F. W. Johnson, Chairman, Halifax; Dr. S. G. Ritchie, Halifax; Dr. G. K. Thomson, Halifax; Dr. H. O. Harding, Yarmouth; Dr. A. W. Faulkner, Halifax; Dr. Hazel A. Thompson, Secretary, Halifax.

Obituary



THE LATE DR. TRUMAN W. BROPHY.

THE Editor of ORAL HEALTH has kindly requested me to write an appreciation of my friend, Dr. Brophy, and I am all the more willing to attempt to do this because it gives me the opportunity of placing on record my personal impressions of his many-sided character as I saw it through an intimacy of more than forty years.

Dr. Brophy was born in 1848 and if he had lived a couple of months longer he would have rounded out full four score years. He began the study of dentistry in an office when he was seventeen, and in 1872 he was graduated from the Pennsylvania College of Dental Surgeons as D.D.S., and in 1880 from Rush Medical College, as M.D. In 1881 he assisted in organizing the Chicago Dental Infirmary, which later became the Chicago College of Dental Surgery. He was the first Dean of this institution and held the position till 1920, an uninterrupted service of nearly forty years in this responsible capacity.

He early became interested in oral surgery and developed a new technique for operating on cleft palate and hare lip. He soon became noted for this operation and during his long and eventful career he made more operations of this type than any man living or dead.

To recount all the honours that came to him, both at home and abroad, would require too much space, but it is safe to assert that no other man ever received greater homage from the profession and the people than did Dr. Brophy. Among his medals and decorations were the following: In 1902, a medal "Homenaje al Talento" from Professor Dr. J. J. Rojo of Mexico City; in 1903, medal for "Merited Distinction" from the Odontological Society of Paris, France; in 1906, the Fellowship Medal of the Dental Society of the State of New York; in 1913, Medallion from the Italian Stomatological Society; also in 1913, Decoration from the French Republic, "Officer of Public Instruction"; in 1924, the International Miller Memorial Prize, from the Federation Dentaire Internationale; and last, the Decoration from the French Republic, of Officer of the Legion of Honour.

There was one outstanding characteristic of Dr. Brophy which especially endeared him to the dental profession. While he carried the degree of M.D., and had many staunch friends among the medical men, he never failed to emphasize the fact that he was a dentist, and all of his closest affiliations were with dental organizations. Usually when a man has the two degrees, he likes to make prominent the fact of his medical graduation, but not so with Dr. Brophy. He was cordial with physicians, but his most intimate friends were dentists, and it was to them that he gave his greatest loyalty and affection.

No man ever prized the friendship of his fellows more than Dr. Brophy. On one occasion I was taking him to task for not going to California earlier in the autumn before his common enemy, asthma, got too much of a hold on him. I said: "You always remain in Chicago so late that you become ill and make us all anxious about you. Why don't you go to California early enough to escape asthma?" He looked at me with rather a serious expression and merely remarked: "Johnson, I want to be where my friends are." And I had no further argument. This did not mean that he had no friends in California. He had many of them, but down in his heart there was an affection for the men in his own city—his long time intimates, that transcended any other attachments.

And to me there came the privilege of being what he always called his closest friend. He was the first dentist I met in Chicago, and from that day, more than forty years ago, there was a community of interest between us which ripened as the years passed on. In any emergency of life we were accustomed

to go to each other with the perfect assurance that he would receive the most sympathetic interest, and to-day as I write these lines my heart strings are pulled as I recall that when he lay on his death bed in Los Angeles and roused for a moment out of his coma he wondered if I could not come to him. Friendships like this are not formed in a day nor do they come often in a life time, but when they do come they are among the most precious possessions of our lives.

Volumes might be written of Dr. Brophy's experiences and achievements, but at this hour we are too near the awful fact of his passing, and too wrought up by our grief to gain a proper perspective of his outstanding service to the world. Time alone must place him in his destined niche in our professional progress, and those of us who knew him best will wait with assurance for the verdict of posterity on his ultimate service to human kind. To-day we have solace in the thought that his career was so well rounded out, and that we were privileged to travel by his side during all the years of his greatest activity. He has laid down by the wayside, and his willing hands have loosened their hold on their accustomed tasks and lie folded forever on his breast. The brain that was so fertile in prescient thought has gone to rest and all that was mortal has passed from view, and lapsed into the quiet of eternal sleep. All that is left is a memory—a memory sweetening our sorrow and tinging our grief with the glow of gratitude and love. We could not wish him back; his work was so well done that nature itself has pronounced it finished.

C. H. Johnson

* * *

DR. R. M. FISHER, WIARTON, ONT.



M. FISHER, L.D.S., M.D., C.M., graduated from the Royal College of Dental Surgeons of Ontario in 1876, and from the Faculty of Medicine of the University of Toronto in 1882. He served on the staff of the Dental College from 1877 to 1883 as demonstrator and instructor of Practical Dentistry, and then located in Wiarton where he has been engaged in

Dental and Medical practice, and more recently acted as Coroner for the County of Bruce. Dr. Fisher passed away on February 6th, at Wiarton, and his remains will be taken to Elora for burial. His many friends mourn his demise.

* * *

MILTON H. HAGEY, D.D.S.



WE regret to announce the untimely passing of Dr. Milton H. Hagey, who has been engaged in the practice of Dentistry in Preston since graduation in Dentistry from the University of Toronto in 1916.

Dr. Hagey was associated in practice for many years in co-operation with the Medical Staff at the Sanatarium in Preston.

* * *

J. A. CAMERON HOGGAN, D.D.S.



ABOUT a month ago Dr. Hoggan received serious injuries in an automobile accident, and we regret to report his death in Richmond, Virginia, from this cause.

Upon graduation in Dentistry, from the University of Toronto, in 1901, he engaged in general practice in Walkerville until 1907, when, after a year in Toronto, he moved to Hamilton, engaging in the specialty of Orthodontia. In 1913 he accepted the position of Dean of the Faculty of Dentistry of the Medical College of Virginia, which he relinquished, about five years ago, when the pressure of private practice demanded his entire time.

The late Dr. Hoggan has a host of friends throughout Canada and the United States who will mourn his passing as one who made a noteworthy contribution to the advancement of his chosen profession.

Be Big



LET not the littleness of people disturb you. Remember that if you have been made big enough to do big things in life, you have been made large enough to overlook little things. So do not imagine you are great so long as by sifting yourself you find jealousy, hatred, malice, or even the spirit which frets in your heart. These and Greatness sleep not in the same soul.—*John Trotwood Moore.*

Officers of Canadian Dental Organizations

*Oral Health will be pleased to Receive Additions or Corrections that
Directory of Names May be Kept as Accurate as Possible.*



CANADIAN DENTAL ASSOCIATION

President: Dr. John Clay, Calgary, Alta.
Secretary: Dr. J. Stanley Bagnall, 34 Larch St., Halifax, N.S.

DOMINION DENTAL COUNCIL OF CANADA

President: Dr. George Kerr Thomson, Halifax, N.S.
Secretary: Dr. W. D. Cowan, Regina, Sask.

CANADIAN DENTAL HYGIENE COUNCIL

President: Hon. S. C. Mewburn, K.C., Hamilton.
Secretary: Dr. E. A. Grant, Toronto.

CANADIAN DENTAL RESEARCH FOUNDATION

President: Dr. R. Gordon McLean, Toronto.
Secretary: Dr. E. A. Grant, Toronto.

PROVINCIAL AND LOCAL DENTAL ASSOCIATIONS.

THE DENTAL SOCIETY OF WESTERN CANADA

President: Dr. E. Doyle, Calgary, Alberta.
Secretary: Dr. P. W. Winthrop, Saskatoon, Sask.

BRITISH COLUMBIA

British Columbia Dental Association.

Pres.: Dr. F. T. Coghlan, Vancouver.
Sec.: Dr. Fraser Allen, Vancouver.

Vancouver Dental Society.

Pres.: Dr. J. Frank Hill.
Sec.-Treas.: Dr. H. M. Cline.

Victoria Dental Society.

Pres.: Dr. J. C. Foote.
Sec.: Dr. S. Youlden.

ALBERTA

Alberta Dental Association.

Pres.: Dr. H. L. Coursier, Wainwright.
Vice Pres.: Dr. M. L. Moore.
Sec. & Reg.: Dr. A. B. Mason, Edmonton

Calgary Dental Society.

Pres.: Dr. A. C. Steeves.
Sec.-Treas.: Dr. B. J. Charles.

Edmonton Dental Society.

Pres.: Dr. Robt. Decker.
Vice Pres.: Dr. Alex. Gemeroy.
Sec.: Dr. W. Scott Hamilton.

Lethbridge Dental Association.

Pres.: Dr. C. M. Fletcher.
Sec.-Treas.: Dr. J. S. Stewart.

SASKATCHEWAN

Saskatchewan Dental Association.

Pres.: Dr. A. J. Brett, Regina, Sask.
Sec.: Dr. Irwin Robb, Regina, Sask.

Saskatoon Dental Society

Pres.: Dr. Lee Steeves.
Sec.-Treas.: Dr. Robt. A. Newlove.

Moose Jaw Dental Society.

Pres.: Dr. R. H. McDougall.
Sec.-Treas.: Dr. E. J. Hill.

Regina Dental Society.

Pres.: Dr. W. J. Mooney.
Sec.-Treas.: Dr. W. M. Blair.

MANITOBA

Manitoba Dental Association.

Pres.: Dr. H. J. Merkeley, Winnipeg
Sec.: Dr. J. F. Morrison, Winnipeg.

Winnipeg Dental Society.

Pres.: Dr. B. E. Brownlee.
Sec.-Treas.: Dr. Ben. Toombs.

ONTARIO

Academy of Dentistry, Hamilton.

Pres.: Dr. J. N. Stewart.
Sec.: Dr. L. A. Kilburn.

Academy of Dentistry, Toronto.

Pres.: Dr. S. Wollatt.
Sec.: Dr. A. Hord.

Bay of Quinte Dental Society.

Pres.: Dr. F. T. Knight, Picton.
Sec.: Dr. C. E. Wright, Picton.

Brant Dental Society.

Pres.: Dr. W. Hart, Brantford.
Sec.: Dr. L. E. Riddolls, Brantford.

Cornwall Dental Association.

Pres.: Dr. J. V. Lally.
Sec.-Treas.: Dr. H. W. Weagant.

Eastern Ontario Dental Society.

Pres.: Dr. S. G. McGaughey, Ottawa
Sec.: Dr. D. C. W. Coupland, Ottawa

Elgin Dental Association.

Pres.: Dr. W. J. Riseborough, St. Thomas
Sec.: Dr. G. T. Mitton, St. Thomas.

Essex County Dental Association.

Pres.: Dr. A. Johnston, Windsor.
Sec.: Dr. O. C. Baker, Windsor.

Grey County Dental Society.

Pres.: Dr. C. Marshall, Owen Sound
Sec.: Dr. J. W. Tackaberry,
Owen Sound

Huron County Dental Society.

Pres.:
Sec.: Dr. F. J. Bechely, Seaforth.

Kingston Dental Association.

Pres.: Dr. A. W. Winnett.
Sec.: Dr. T. H. Refton.

ORAL HEALTH for March, 1928

PROVINCIAL AND LOCAL DENTAL ASSOCIATIONS—Continued.

Lambton County Dental Society

Pres.: Dr. W. J. Bentley, Sarnia.
Sec.: Dr. Frank M. Lott, Sarnia.

London Dental Society.

Pres.: Dr. J. F. Giffen.
Sec.: Dr. S. R. Moore.

Niagara Falls Dental Society.

Pres.: Dr. L. C. Jones.
Sec.: Dr. C. A. Tanton.

North Bay Dental Society.

Pres.: Dr. B. F. Nott.
Sec.-Treas.: Dr. L. H. McCool.

North Temiskaming Dental Association.

Pres.: Dr. G. Mitchell, Timmins.
Sec.: Dr. S. L. Honey, Timmins.

North Waterloo Co. Dental Association

Sec.-Tr.: Dr. J. A. Spellman, Kitchener

Ontario Dental Association.

Pres.: Dr. A. E. Webster, Toronto.
Sec.: Dr. F. J. Conboy, Toronto.

Ontario and Durham Dental Society.

Pres.: Dr. F. L. Henry, Oshawa.
Sec.: Dr. B. B. Beaton, Whitby.

Ottawa Dental Society.

Pres.: Dr. Lorne E. McLachlan.
Sec.: Dr. Ira W. Hamilton.

Peterborough Dental Society.

Pres.: Dr. Harold Long.
Sec.: Dr. N. W. Hayes.

St. Catharines and District Dental Ass'n.

Pres.: Dr. C. R. Davis, St. Catharines.
Sec.: Dr. J. M. Shultis, St. Catharines.

Sault Ste. Marie Dental Society.

Pres.: Dr. H. F. Goodfellow.
Sec.-Treas.: Dr. R. E. Stone.

Simcoe County Dental Society.

Pres.: Dr. W. M. Seymour, Orillia.
Sec.: J. B. King, Penetang.

South Temiskaming Dental Association.

Pres.: Dr. H. H. Abell, Cobalt.
Sec.: Dr. J. C. A. Crawford, Haileybury

Stratford Dental Society.

Pres.: Dr. D. R. Nethercott, Stratford.
Sec.:

Sudbury Dental Society.

Pres.: Dr. J. C. Fraser, Sudbury.
Sec.: Dr. J. S. Miller, Sudbury.

Thunder Bay Dental Association.

Pres.: W. D. Ramore, Port Arthur.
Sec.: Dr. M. P. Bengier, Port Arthur.

Wellington County Dental Society.

Sec.: Dr. E. D. Burrows, Guelph.

QUEBEC

Montreal Dental Club.

Pres.: Dr. D. P. Mowry, Montreal.
Sec.: Dr. A. D. Crowe, Montreal.

Mount Royal Dental Society.

Pres.: Dr. I. N. Pesner, Montreal.
Sec.: Dr. L. S. Ejdingen, Montreal.

Quebec Dental Association.

Pres.: Dr. E. Charron, Montreal, Que.
Sec.: Dr. Denis Forest, Montreal, Que.

Société Dentaire de Montreal.

Pres.: Dr. J. A. Pinault.
Sec.: Dr. Paul Geoffrion.

NEW BRUNSWICK

Moncton Dental Society..

Pres.: Dr. J. A. Le Blanc.
Sec.: Dr. A. H. Le Blanc.

New Brunswick Dental Association.

Pres.: Dr. J. Kerr Higgins, St. John.
Sec.: Dr. F. A. Godsoe, St. John, N.B.

St. John Dental Society.

Pres.: Dr. J. E. Edgcombe.
Sec.: Dr. Frank Poyaner.

NOVA SCOTIA

Cape Breton Dental Society

Pres.: Dr. J. P. Parker, Sydney.
Sec.: Dr. J. T. Lebbetter, Sydney.

Dental Association of Nova Scotia.

Pres.: Dr. J. T. Roach, Wolfville.
Sec.: Dr. J. S. Bagnall, Halifax.

Halifax Dental Society.

Pres.: Dr. F. W. Johnson.
Sec.-Treas.: Dr. G. A. Chudleigh.

Western Counties Dental Association

Pres.: Dr. H. O. Harding, Yarmouth.
Sec.: Dr. V. G. Turnbull, Digby.

PRINCE EDWARD ISLAND

Prince Edward Island Dental Assoc'n.

Pres.: Dr. T. E. E. Robins, Charlottetown
Sec.-Treas.-Reg'r: Dr. J. S. Bagnall
Charlottetown

REGISTRARS OF PROVINCIAL DENTAL BOARDS.

Prince Edward Island.

Dr. J. S. Bagnall, Sec.-Treas., P. E.
Island Dental Association, Char-
lottetown, P. E. I.

Nova Scotia.

Dr. A. W. Faulkner, Registrar, Nova
Scotia Dental Board, 69 Gottingen
St., Halifax, Nova Scotia.

New Brunswick.

Dr. Frank A. Godsoe, Registrar,
Council of Dental Surgeons, St.
John, N.B.

Newfoundland.

Dr. W. T. Rea, Sec.-Registrar, New-
foundland Dental Board, St.
Johns, Nfld.

Quebec.

Dr. D. Forest, Registrar, Quebec
Dental Board, 187 de la Roche St.
Montreal, Quebec

Ontario.

Dr. W. E. Willmott, Sec.-Treas.,
Royal College of Dental Surgeons
of Ontario, 211 Huron St., Toronto.

Manitoba.

Dr. W. W. Wright, Registrar, Mani-
toba Dental Association, 767
Warsaw Ave., Winnipeg, Man.

Saskatchewan.

Dr. L. J. D. Fasken, Registrar, Sas-
katchewan College of Dental Sur-
geons, Regina, Saskatchewan.

Alberta.

Dr. Leslie McIntyre, Registrar, Al-
berta Dental Association, Edmon-
ton, Alberta.

British Columbia.

Dr. W. J. Lea, Registrar, College of
Dental Surgeons of B. C., Van-
couver, B.C.

Oral Health



Vol. 18

TORONTO, MARCH, 1928

No. 2

EDITOR:

WALLACE SECCOMBE, D.D.S., F.A.C.D., Toronto, Ont.

CONTRIBUTING EDITORS:

C. N. JOHNSON, M.A., D.D.S., F.A.C.D., Chicago.

W. E. CUMMER, D.D.S., F.A.C.D., Toronto.

Entered as Second-Class Matter at the Post Office Department.
Ottawa.

Subscription Price, Canada and United States, two dollars per annum; elsewhere three dollars. Single Copies 25c. Free distribution to all members of the Dental Profession practising within the Dominion of Canada and Newfoundland.

Original Communications, Book Reviews, Exchanges, Society Reports, Personal Items and other Correspondence should be addressed to the Editor Oral Health, 102 Wells Hill Avenue, Toronto, 10, Canada.

Subscriptions and all business Communications should be addressed to The Publishers, Oral Health, Royal Bank Building, 269 College St., Toronto, 2, Can.

EDITORIAL

The Dental Practitioner and Research

THE Dominion Government has announced its intention to provide public funds for the development of Industrial and Scientific Research in Canada. Every effort in this direction will receive the undivided support of the entire Dental Profession. It is only by the most generous financial aid that the most pressing requirements for developing our national resources and making provision for assistance to our industries, can be met. This is a vital necessity to Canada at this stage of our national development.

Such a Governmental Research programme, however, will have no direct bearing upon medical and dental research, which will of necessity continue to be carried on in Univer-

sities, Hospitals and Dental Infirmaries, where ample opportunity is afforded for clinical study and observation.

* * *



VERY dentist can and should contribute to dental research. The dental profession looks to the universities to direct and provide the major facilities for research, but the universities in turn look to the practising dentists to make their contributions through scientific clinical observation and the careful recording of case histories. Practitioners may thus make essential contributions to Dental Science, materially adding to the actual knowledge of clinical facts.

It is not necessarily the longer articles in the dental magazines that are of most value. Brief notes from various practising dentists describing what they have observed may prove of inestimable value in the solution of even complex dental problems.

Dr. Banting is reported to have said: "If a physician has made important observations with regard to the management of disease, and keeps them to himself, only his own patients profit thereby. But, if he broadcasts his knowledge in the medical journals, thousands of practitioners will follow his instruction, and the good accomplished will be thousands of times greater."

Every dentist should appreciate the vital need of close co-operation between the university laboratories and the clinical laboratories, as represented by the offices of the members of the dental profession.

* * *

CASE HISTORIES AND QUERIES FROM PRACTITIONERS.



WILL the readers of Oral Health please send, for publication, short written histories of interesting cases from dental practice? These would be published, with or without author's name, as may be preferred, and would prove of value—just a brief history of the case from beginning to end, in your own language, making comments, or not, as you may desire. The case history may be followed by a question; or any question relating to a dental problem or regarding a difficulty encountered in practice may be asked. Answers will be published in a subsequent issue along with case histories received.

We hope this invitation may be so freely accepted that it may develop into a Practitioners' Own Department in Oral Health. Your help and co-operation will be greatly appreciated.

Manuscript should be received not later than the fifteenth of the month previous to issue and should be addressed to The Editor, 102 Wells Hill Avenue, Toronto 10, Ontario.

Dental Health



THE Canadian Medical Association has arranged for the publication, through the daily press, of the following article upon the subject of "Sound Teeth":

Whether or not a building is safe and sound depends upon the materials used and the skill of the workmen. Our body-cells are skilled in the building-up process, but they must be given good materials for this in the food we eat. If there are to be sound teeth, there must be provided the materials from which to build such teeth.

Mineral elements, such as calcium, form a large part of the teeth which, in many ways, are like bone. The outer surface, or crown of the tooth, is much harder than bone. This outer surface or enamel is the hardest substance in the body.

These mineral substances can only be secured from the food eaten. In other words, proper food must be eaten if we are to have sound teeth.

The kind of teeth a child has depends upon the food his mother ate before his birth, and upon what food he received during his earliest years. The beginning of the tooth is laid down very early in life, at the tenth week of foetal life, to be exact. This is one of the reasons why expectant mothers should know what to eat.

What are these foods that the expectant mother and growing children must have for the proper building of teeth? Foods possessing these elements are milk and milk products, whole grains, leafy vegetables, such as celery, lettuce and spinach.

It will be remarked, whenever the question of diet is considered in relation to health, that milk and milk products are of the first importance and, following closely, are the green leafy vegetables and fruits.

When, as a nation, we begin to eat intelligently, many of our ills will disappear, and we will become a sturdier, healthier people.

ORAL HEALTH

A JOURNAL THAT STANDS FOR THE 'OUNCE OF
PREVENTION AS WELL AS THE POUND OF CURE



Vol. 18

TORONTO, APRIL, 1928

No. 4

Official Statement Issued by the President of the Canadian Dental Association

JOHN W. CLAY, *President, Canadian Dental Association.*



HERE is at the present time a lack of general knowledge of the proposed changes in the Constitution and By-laws of the Canadian Dental Association. At the same time there appears to exist some misapprehension of the purposes of the Association as it will be carried on if these changes are accepted.

It has, therefore, been thought advisable that a statement should be given to the three official journals as to what the Association expects to accomplish,—what, in brief, are the proposed changes, and how these changes are to be put into effect.

The writer, being a member of the executive of the Canadian Dental Association and the Alberta representative sent to discuss the changes proposed, may speak with some authority of the matters of fact set forth below. The opinions expressed and offered can have no value beyond those of an individual, except that they are an attempt to reflect the common opinion of those most interested in this movement. They do represent the views of men from all portions of the Dominion.

For twenty-six years the Canadian Dental Association has carried on in our Dominion a hard struggle for growth and expression, in an effort to be of value to the dental profession of Canada. The effort has, I believe, been justified, and certain results, both tangible and intangible, remain as a result.

It is now proposed to radically change the form of the

Association with the hope that its efficiency and value may be greatly increased.

On Saturday, June 2nd, 1928, a meeting of provincially appointed delegates, from all the provinces in Canada, is being called to discuss and agree on a new constitution for the Canadian Dental Association. Should an agreement be reached at this meeting, the constitution will be recommended for acceptance to a meeting of the Association which will be held early the following week. If the proposals are accepted, the Association will immediately begin to function under the new plan.

It should here be mentioned that, through the kind courtesy of the Ontario Dental Society, accommodation, and the advantage of a splendid programme, have been offered freely to the Canadian Dental Association. The Association is deeply indebted to the Ontario Society for the advantages and opportunity offered.

What will be the future policy of the organization, what will be the course on which it will set out, will be decided at the coming meeting in June. At that meeting the management of the Association will be placed in the delegates' hands.

With each province having official representation on the board, it is hoped that the various official and unofficial organizations of every province in Canada will stand behind their delegates in an effort to develop a more worthwhile Canadian Dental Association. It should be pointed out that all the provinces, including Quebec and British Columbia, have voted whole-hearted support of the movement. In these two latter provinces reside about forty per cent. of Canada's population. At the present time there is no other dental body which represents all Canada, and, for this reason, the support of every dentist, every voluntary and official body in the Dominion is asked for. If this support is given it will be possible to build up a strong virile organization, with a large membership, which may then speak with authority for the dental profession of Canada.

In the February number of ORAL HEALTH Dr. A. W. Faulkner of Halifax expresses very clearly and concisely his views on the subject of the relationship of the Canadian Dental Association to the Dominion Dental Council. Dr. Faulkner, who is the Provincial delegate from Nova Scotia, has given the subject a great deal of thought during the last

year. I would commend his letter to the delegates for careful consideration, and to all those interested in the Association.

In case there may be in the minds of some the fear that it is the intention of the Canadian Dental Association to usurp the field of the Dominion Dental Council, it should be stated that no such suggestion has ever been considered. On the contrary, at the delegates meeting, held in Toronto in 1927, this separation of identity and purpose was stressed very strongly by some delegates and accepted by all.

The present constitution, among the objects of the Association, states that the Association shall be interested in "promoting the enactment of just dental laws." So that it might be clearly understood that such matters as standards and license were no part of the purpose of the Association, the new constitution was drawn up with this clause left out.

In short it was felt that there is a large field for the Dominion Dental Council, and one for the Canadian Dental Association.

The Dominion Dental Council is doing a very valuable work in the seven provinces in which it is accepted. Whether in the future the other provinces may wish to join the Council, with a standard acceptable to all Canada, is yet to be seen and rests with each province to determine for itself.

In the meantime *all the provinces* in Canada are willing to join in an effort to form a Canadian Dental Association truly national in character. With support from all, and all willing to work together, this can be done.

The steps taken so far can be briefly told:

A study was made by the delegates, of the present constitution, and those of the Canadian National Medical Association, the American Dental Association, and the British voluntary Dental body. Agreement was reached that the plan of government of the Canadian Medical Association most nearly met our needs. From this was prepared a constitution, with some large sized patches from our own, and a few small patches added from the American constitution. The result may seem faulty, but it is hoped to correct some of the obvious defects at this year's meeting. No doubt it will be patched and repatched again in the years to come. It is the earnest hope of the delegates that a foundation has been laid for a workable constitution.

Three fundamental points were the subject of considerable

difference of opinion. The first was the number of delegates which should represent each province. It was argued that all provinces should have equal voting power on the Board of Delegates, so that the larger provinces should not dictate the policy. On the other hand it was pointed out as not reasonable that one hundred and less dentists in some provinces and two hundred in others should have the same voice on the Board as provinces like Quebec, with seven hundred dentists, and Ontario with eighteen hundred, out of the thirty-six hundred dentists in Canada.

It should be pointed out that neither of the larger provinces asked for larger representation, but a sense of fair play on the part of smaller ones suggested two delegates from each of the larger provinces and one from each of the seven others. This was accepted.

Another difficult problem to decide was the question of what provincial body should appoint the delegate or delegates. Some favoured voluntary, and others official bodies. This point has not yet been satisfactorily settled. In some provinces there is no province-wide voluntary society. In others the voluntary societies cover complementary areas, and in others all the ethical members of the profession are not eligible for membership in the voluntary societies.

This will be a difficult matter to decide. The suggestion of Dr. Faulkner would seem to have a good deal of merit for those provinces which have no province-wide voluntary society available to all ethical dentists. This includes most of the provinces. Briefly the suggestion is that the official provincial organization appoints the delegates, and so all men in the province are represented. Only those, however, who accept the Code of Ethics of the Canadian Dental Association may become members.

This is different from the Canadian Medical Association method. In their case the provincial voluntary association are made branches of the Dominion body, and the delegates are sent from these branches. Such a plan is not feasible in our case from an economic standpoint, and also because we have in many provinces many ethical dentists in unorganized territory. Also in some provinces a membership limit is placed on the voluntary societies.

For these reasons no attempt has yet been made to define the provincial authority for the appointment of delegates, but

some solution must be found in June for the difficult question. It would seem reasonable that the *wishes of the individual provinces* should be the basis of settlement and the delegates should meet with a clear view of the needs and wishes of the provinces they represent.

In conclusion, the question of how best to obtain the membership of all ethical Canadian dentists, which it is the desire of the Board of delegates to do, presents a problem not yet solved. The membership fee to be asked is very small.

It is manifestly impossible for the Association secretary to collect these small sums and look after the individual membership. The delegates feel that the local voluntary societies would co-operate to collect these fees and forward applications for membership from ethical men in their own groups and from the surrounding unorganized territory.

With all these agencies working, a large membership can be built up at a very reasonable amount of trouble and expense. With co-operation the Canadian Dental Association should have a membership of a large majority of the ethical dentists of all Canada.

Embodied in this overlong statement is the result of the work done by, and the hope for the future of, the delegates sent by the provinces to bring into being a Canadian Dental Association of greater value to Canadian dentists, and with a membership of the large majority of the dentists of Canada. Given the membership which is necessary, and the support which this represents, I believe the Canadian Dental Association will prove its value. It confidently asks this support from every ethical dentist in the Dominion of Canada.

Be a Good Listener

“**B**E a good listener. The man who can listen gets what the other fellow knows, to add to his own storehouse of knowledge. Be ready and willing to talk when the proper time comes, but always remember that the art of listening is a greater art, and a much harder one to develop, than the art of speaking. Many a fool is a fairly good talker, but no one ever saw a fool who was a good listener.”

The Detailed Steps in the Construction of the Wrought Gold Clasp With Lug as an Attachment for Bridges and Partial Dentures*

LEE WALTER DOXTATER, D.D.S., NEW YORK, N.Y.

*Clinical Professor of Prosthodontia, Dental School of New
York University.*



HEREVER professional men congregate for purposes of discussing the principles relating to prosthetic dentistry, sooner or later in that discussion the problem of clasps and their usage becomes the topic of interest. Here always are found, upon the one hand, the extremists who hold that any form of clasp is a menace to tooth structure, and that eventually it will induce disease to the tooth and its supporting structures. Upon the other hand there are those who believe that clasps may be so constructed as to render efficient service, producing no untoward influence upon the health of the tooth or its supporting structures, and that such a condition may continue indefinitely.

Disregarding the good, or bad, features which the use of the clasp, as an attachment, entails, the fact remains that clasps have been used for years and will be used in the future. This is no doubt due to the fact that clasps can be made by nearly any dentist, while the more complicated types of removable attachments are efficacious only in the hands of men who have special technical ability and the training necessary for the construction of bridges which demands accuracy to the thousandth part of an inch. However, there are certain fundamental principles which must be observed even in the construction of the simpler types of removable bridge work and partial dentures. This is the establishment of balanced occlusion, and what is implied in that, the elimination of trauma of occlusal origin. Traumatic occlusion, occurring as a result of faulty construction of crowns, inlays and bridges, has caused the loss of more teeth than any other single factor concerned in these branches of dentistry. We have been accustomed, through the teachings of the past, to look upon poorly fitting

* Read before the Fall clinic meeting of the Montreal Dental Club, 1927.

crown bands and so-called open contacts as being the principle cause of damage in crown and bridge work. We have had to learn in recent times that these factors, injurious as they are conceded to be, are nevertheless of minor importance when compared with traumatic occlusion.

The antithesis of traumatic occlusion is balanced occlusion, and to secure this will usually require the application of all the aids which modern dentistry can muster. This includes preliminary preparation of the natural teeth, whether directly involved in the restoration or not, and the recording of the various jaw positions of the patient to provide for the most complete harmony of the various parts of the dental mechanism. When such precautions are taken, success may be expected from the bridge or partial denture.

Before remodelling any of the natural teeth, however, we should ascertain whether or not the mandible is too close to the maxilla. In nearly every case which has suffered the loss of several teeth, the remaining teeth are forced out of position and the bite has closed. This invariably results in relaxation of the facial muscles and produces lines and ridges upon the face. Closing of the bite also frequently results in a backward movement of the condyles, which then encroach upon the external auditory meatus.

In arriving at a decision as to whether or not the bite shall be opened, we study first the facial lines and contours; the magnitude of restorative operations which may be required in opening the bites; and the possibility of securing a balanced occlusion without opening of the bite. These items are given careful consideration as they relate to each other. In other words, it is not invariably essential to facial harmony or occlusal balance that a closed bite shall be opened. If it is decided that the bite shall be opened, this is accomplished by means of crowns, inlays or by the bridgework itself. The decision as to the means to be employed, will favour that method which will involve the least destruction of tooth substance consonant with the achievement of a balanced occlusion.

When occlusal stress is excessive and causes injury of one kind or another to the occluding teeth we apply to this condition the term traumatic occlusion. If we are to make bridges and partial dentures which will endure, it is imperative that all traumatic occlusion of the natural teeth be removed by grinding, before impressions are taken for the restorative work. If we hope to obtain balanced occlusion in the ensemble of the

finished work it is essential that the remaining natural teeth harmonize, as regard the occlusal relation. Not only is it necessary that no excessive stress be applied to the restoration, but the natural teeth also must coordinate by themselves before the restoration is made. No one in these days denies that when bridge abutments become subject to traumatic occlusion the usefulness of the bridge work is at an end.

In the field of partial denture construction, the element of traumatic occlusion is a dominant factor in determining success or failure. It not infrequently happens that an occlusal in-harmony of the artificial teeth will be transmitted to the natural teeth which are called upon for retention. This will inevitably tend to produce disease around these teeth. Disintegration of their supporting structures will be the more certain to occur if these anchor teeth are in any degree tipped from their normal position. This is a point which has received too little attention in discussions on bridgework and partial denture construction. Teeth which are tipped out of their natural position are always at a disadvantage, no matter if all the natural teeth are present in the mouth. How much greater will be the disturbance of their supporting structures, when we add to this natural disadvantage the extra burden, which use as an abutment entails.

Faulty occlusion on the supplied teeth will produce an abnormal range of movement of the artificial structure, which may even produce an injury through abnormal pressure on teeth not used as anchorages. This may account for some of the extreme gingival irritation observed in mouths in which partial dentures have been placed.

Acceptable casts of the entire mouth must be obtained in each instance where a bridge or partial denture is to be made. These are placed upon an adaptable articulator and used as a guide for the first step in the planning of the restoration, viz., the remodeling of the natural teeth to a condition of functional balance. By a careful study of these first casts on the articulator, it is possible to determine which teeth are out of occlusal harmony. An adaptable articulator is particularly valuable in studying occlusal relations of the lingual cusps, since these occlusal relationships cannot as easily be determined when examining teeth in the mouth.

In remodelling the natural teeth first note those teeth which obstruct a free movement of the mandible upon the mounted casts. After reducing the occlusion of the cusps of those teeth which interfere with a free excursion of the mandible in the

right and left lateral and protrusive directions, note the effect of excessive closing pressure in centric occlusion. When the teeth are brought together with force, look for blanching of the gingiva about any of the teeth and see that this excessive stress is relieved. The teeth should close in chorus in centric occlusion when correctly adjusted, each tooth striking, but not in a degree more or less than each of the others. When such a relation is produced we say that a balanced occlusion has been obtained. We are then ready to take impressions for any prosthetic restoration of missing teeth which may be necessary.

After the bridge is completed, one tooth at a time is placed in position in the mouth, and such further adjustment for occlusal harmony as may be required is made. The need for this further adjustment is dependent on the fact that in the mouth we are dealing with resilient tissues, the resiliency of which cannot be reproduced by an articulator. The finer accuracy of balanced occlusion is infinitely more difficult to obtain than is the relief of the grosser discrepancies. To obtain a very close and comfortable occlusal harmony carborundum paste is placed on the occlusal surfaces of all the teeth, both natural and artificial, and the patient instructed to rub the teeth together in all movements of the mandible. The carborundum paste will rapidly wear down any slight incoordination of the occlusion.

In the construction of bridges or partial dentures where clasps are used as attachments the question as to the best type of clasp comes up for consideration. You are all familiar with the various types of clasps used to-day. The half-round clasp, the round clasp and loop clasp, the cast clasp, full clasp and half clasp, stiff clasp and flexible clasp, clasp with lug and clasp without lug, and various other types. The most successful clasp for general use is the flexible wrought half-round gold clasp with lug.

First study the case, note the position and inclination of the abutment teeth, whether the ridge is high or low and the tissues hard or soft; whether fillings or inlays are necessary; note if the teeth are in close contact with the opposing teeth. If so the necessity is found for inserting fillings or inlays for the reception of the lugs.

The detailed steps in the construction of the wrought gold clasp with lug are as follows:

Fig. 1 represents a typical case for restoration by this method.

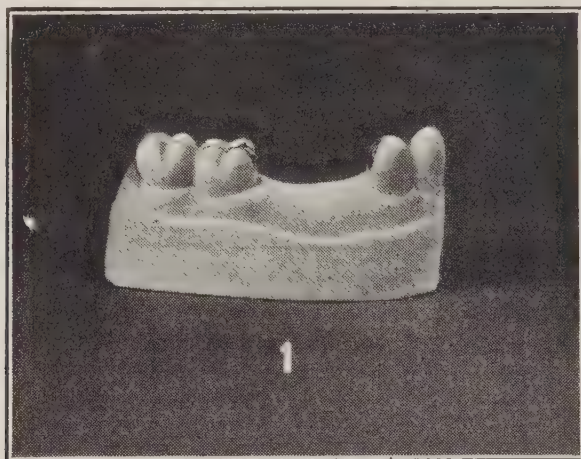
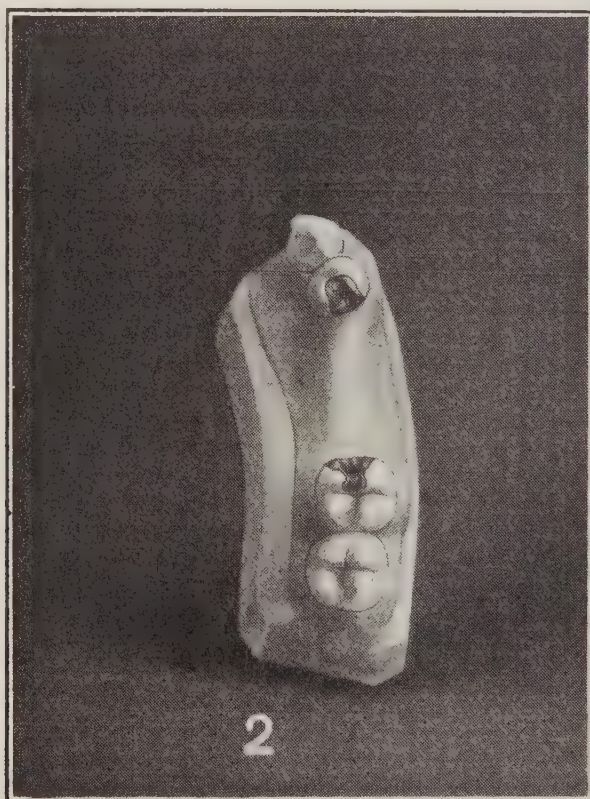
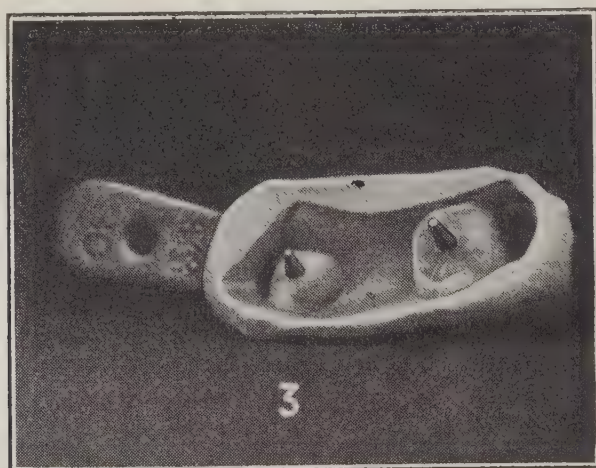


Fig. 2 shows inlays in abutment teeth with grooves for retention of lugs on clasps.

An impression is taken with plaster and cement, is packed into the teeth to be used for abutments and metal dowels are inserted before the cement has set, as in Fig. 3.

Before the cement becomes too hard, trim away with a sharp knife all under-cuts and smooth the surface of the cement.





Treat the impression with separating fluid and oil the packed cement and dowels.

Pack very thick artificial stone into the impression and allow to set over night.

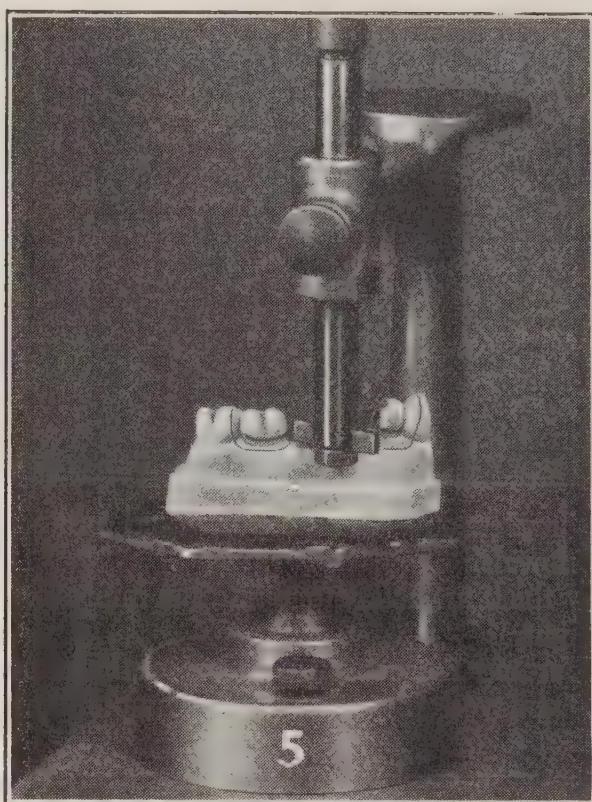
When separated the cement dies are outlined on the model and can be removed for subsequent manipulations. Figs. 4 and 6.

Mount the case on 'Ney's Clasp Surveyor (Fig. 5) and chart with graphite the outline for clasps on the cement dies.

Fig. 6 shows the cement dies lifted out of the impression and the clasps charted with graphite.

To make metal dies, pour plaster into rubber rings, treat cement dies with coconut oil and insert into the soft plaster. When plaster has set, remove rubber rings and cut plaster, with plaster saw, to a depth of $\frac{1}{4}$ inch on each side. Insert blade of knife into the cut and pry apart. Remove cement dies,

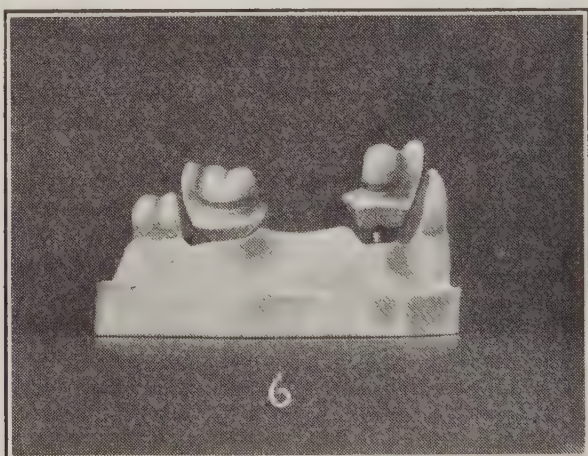


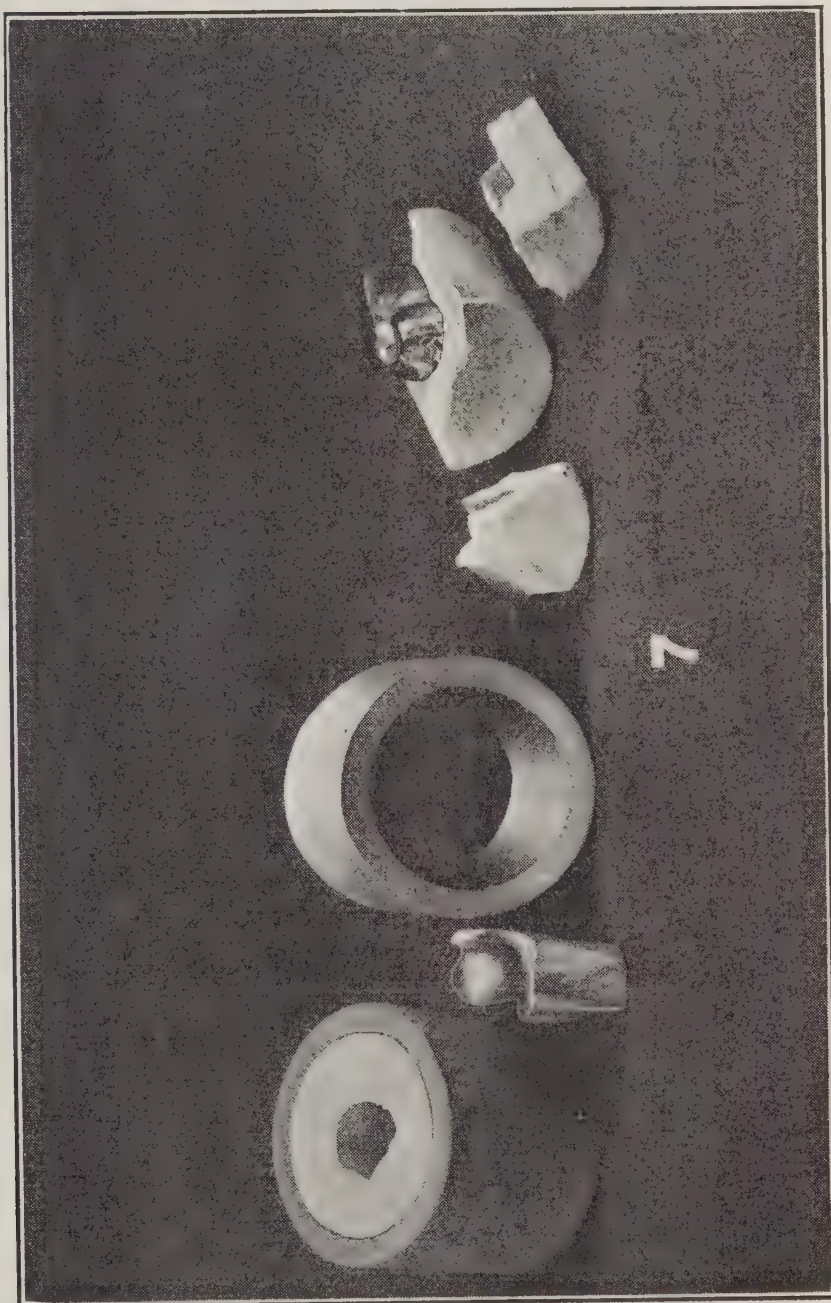


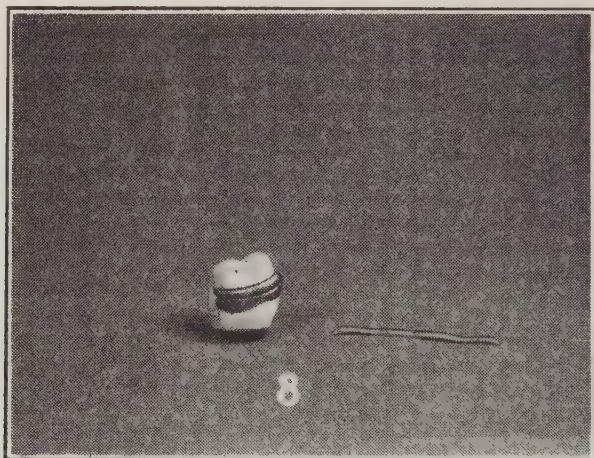
assemble the broken parts of plaster in rubber ring and pour in Ney's Dialoy (fusible metal). Fig. 7.

The metal dies are used for rough work in the process of clasp construction so as not to injure the original cement dies. (The clasps advocated here are made from Ney-Oro Elastic Wire.)

Ney's pattern metal 13 gauge is now fitted and adjusted







on the cement dies along the outline charted by the clasp surveyor. Fig. 8.

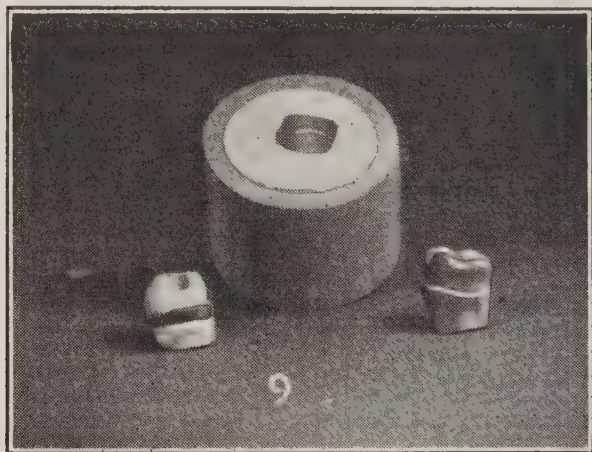
Fill in, with inlay wax, the space between the gingiva and the pattern metal, to the thickness of the clasp.

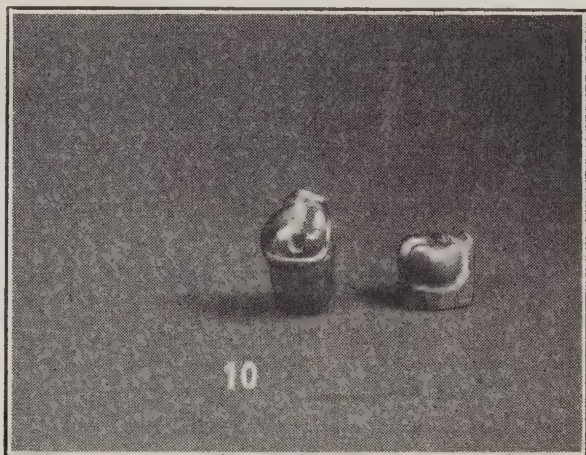
Remove the pattern and make Dialoy dies by same method as described previously. Fig. 9.

These metal dies have a shoulder well defined so that, in swaging, the danger of the clasp wire being displaced from its desired position is eliminated. Fig. 10.

Cut the clasp wire same length as the soft metal pattern and using the first metal dies, adapt to tooth surface by the use of pliers and small mallets. To obtain as close fit as possible, frequent annealing is necessary. Boil the gold wire in nitric acid to remove deposits before each annealing.

After the clasps are nearly adapted to the first set of metal dies, boil in acid and anneal. Fit them along the shoulders of





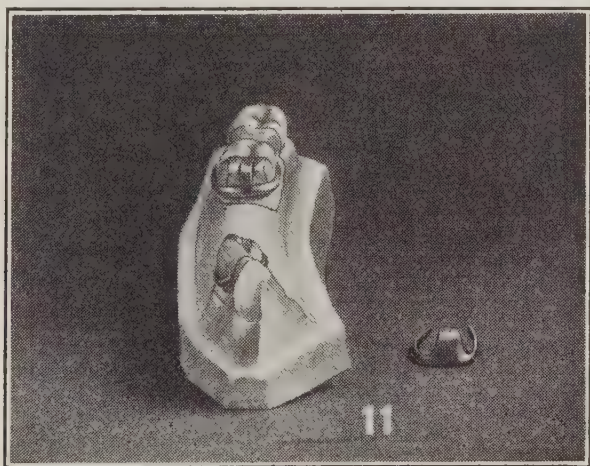
the second set of dies, cover with tissue paper and swage with bird shot in the crown swager. After swaging, boil in acid and anneal again.

To construct lugs:

Cut a piece of 40 gauge platinum large enough to embrace the entire side of tooth where lug is to rest and large enough to cover the margins of the inlay and groove where the lug is to rest on the occlusal surface.

The platinum is first burnished over the first set of metal dies and, after boiling in acid and annealing, taken to the model and reburnished over the cement dies. Fig. 11.

Bend a piece of half-round clasp wire into the groove of the inlay and over the platinum, extending the wire well over the edge of the clasp as in Fig. 11. Attach with sticky wax, remove carefully, invest and solder.

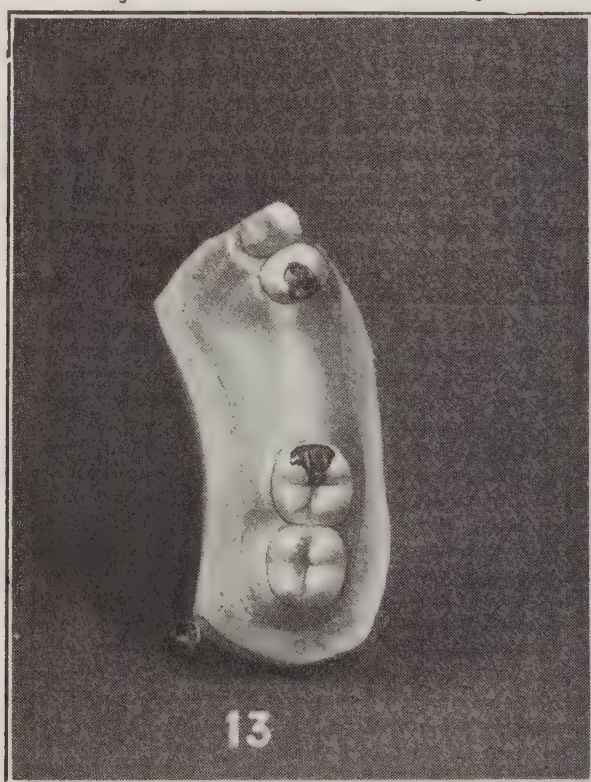


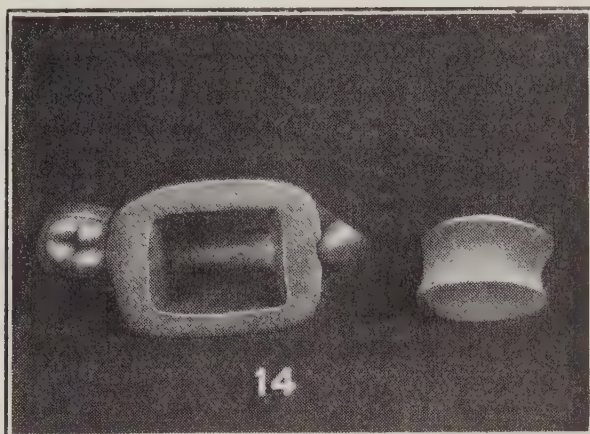


After soldering, trim away excess platinum and solder and shape clasp to the desired form. Fig. 11.

Fig. 12 shows the finished clasps mounted on the model. Care should be taken not to allow the clasp to come in contact with the tissue at the gingiva.

To construct saddle, take new impression, as Fig. 13, and outline saddle with pencil. Along the outline of the saddle



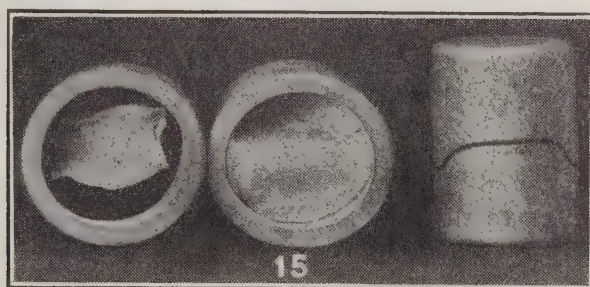


build Pasteline (modelling clay) covering nearly entire model and exposing only the portion of model to be used for saddle. Oil or vaseline this portion of the model and pour well-mixed plaster into the opening.

After plaster has set, remove Plasteline and lift out the plaster counter die. Fig. 14. Inbed the plaster counter die in rubber ring with moldine. Pour Ney's Dialoy and cool in water. Dry and paint the die with mixture of whiting and alcohol.

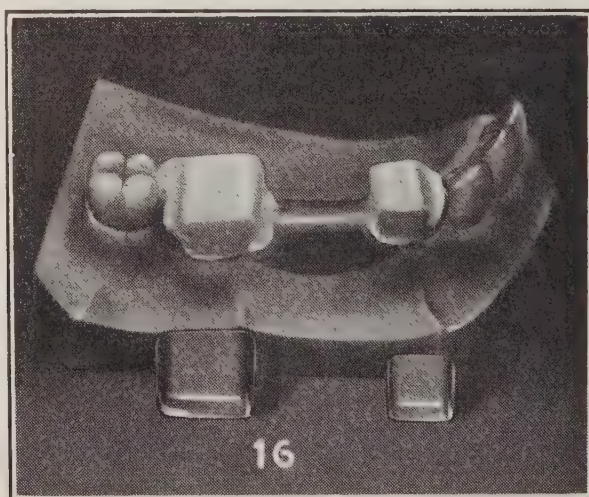
Replace the die in the rubber ring and pour the counter die in Ney's Dialoy. Fig. 15. Cut a piece of 28 gauge 22 K gold plate slightly larger than the outlined saddle and adapt to female die as nearly as possible, by tapping with small horn mallet. Boil in acid, anneal and swage between the dies by tapping with a heavy hammer.

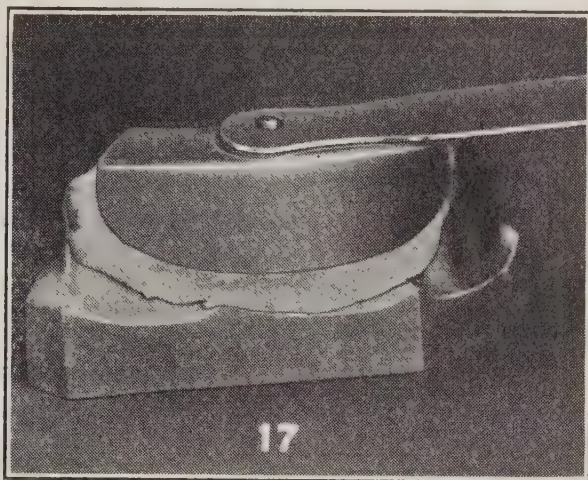
The next consideration is the relation of the saddle to the underlying tissues and the abutment teeth. It is folly to expect an abutment tooth to carry a load greater than the supporting tissues can withstand. For this reason great care must be exercised in properly placing the saddle on the ridge. The saddle itself, in its relation to any hard or high spots on the ridge, must also be given consideration. After securing the



plaster impression and swaging a gold saddle to fit the ridge, as Fig. 15, this saddle is then used to secure a perfect impression. (Patients frequently complain that small particles of food and berry seed become lodged under the saddles of particle dentures and removable bridges. This is usually due to the fact that the resilient tissue was not properly compressed when the impression was taken and the saddle not held in proper position on the ridge before soldering the attachments to the saddle.) Place a small amount of modelling compound on the under surface of the saddle and take a new impression, having the compound heated to 150 degrees F. Note the high, or pronounced hard spots on the ridge, and mark them with indelible pencil. Dry the compound and replace over the ridge. The indelible pencil markings will be transferred to the modelling compound. These spots are then relieved by scraping the impression. Great care must be exercised not to relieve the impression to so great an extent that undue pressure will later be produced on the remaining portions of the ridge.

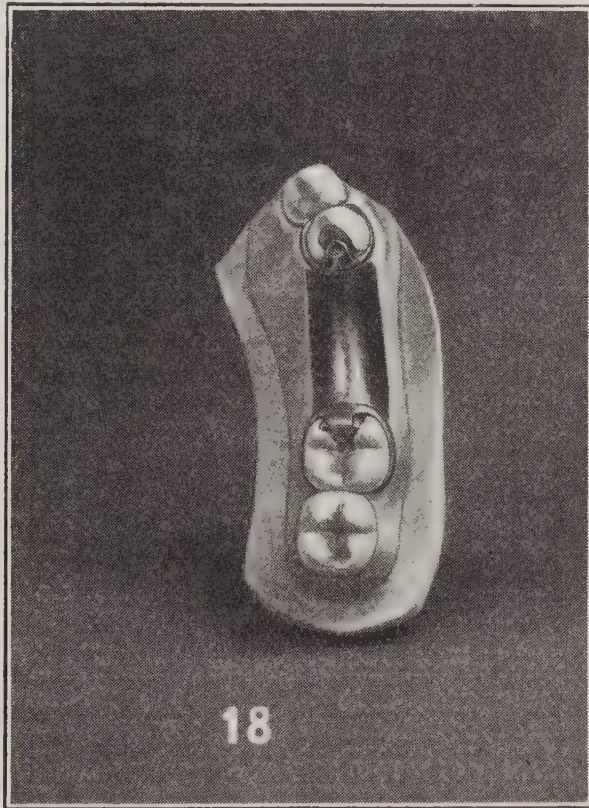
A new model of artificial stone is poured and the saddle is reswaged to fit this model. To prevent trauma of the tissue at the gingiva by the saddle, place a small piece of wax, about 19 gauge in thickness, over this area on the model before making the Plasteline wall to secure plaster counter die for final swaging. The saddle is then placed in the mouth and held in position with just enough pressure to rest it properly. Using a small impression tray, cover the anterior clasp and the anterior portion of the saddle with plaster. Repeat this procedure for the posterior clasp and the posterior portion of the saddle. Fig. 16.





After the latter mix of plaster has set, remove the small trays and the saddle will be retained in position. Using a larger tray, take an impression covering the small impressions already in place over the anterior and posterior abutments. Fig. 17.

The combined impressions are then removed en masse and a



model poured. The clasps are soldered to the saddle which is then placed in the mouth and full impressions taken, together with the bite. Fig. 18. If vulcanite is used to attach the teeth to the saddle, wires are soldered along the edge of the saddle and loops attached along the ridge, or the teeth may be backed with platinum and soldered to the saddle..

After the final soldering the bridge should be oven cooled, to increase the tensile strength and life value of the bridge. The bridge is placed in a Ney's Electric Oven and heated to 900 degrees F. and permitted to cool gradually in the oven to 450 degrees F. over a period of fifteen minutes. If Ney-Oro Elastic Wire No. 4 has been used in the construction of the bridge, the tensile strength will be increased from 115,000, if quenched, to 172,000, if oven cooled. From 125,000, if air cooled, to 172,000 if oven cooled.

Immunity From Common Cold



MEDICAL science has discovered no cure for the "common cold" and experts are not sanguine that even heavily-endowed research will bring success. But there are doctors and others who claim that they have made themselves immune from colds.

Such a one is Dr. Mark Clement, of the Department of Physiology at Middlesex Hospital, according to the *Star Weekly*. Dr. Clement says he has deliberately tried to infect himself with colds from the most virulent cases, but he has failed. He makes himself cold-proof by sleeping in the open air, by having a cold shower every morning, by exposing his whole body to the air for half an hour every day and by not wearing underclothing.

His theory is that modern people wear far too much clothing. They mummify themselves. They atrophy the skin and prevent it from responding to the normal stimulus of air. The heat-regulating mechanism of the body itself is not given a chance.

Dr. Clement has emphasized the fact, however, that he does not ascribe his immunity to any one feature of his health regimen. It appears to be a combination of all, that produces the necessary cold-resistance.

Dental Aspects of Malignant Disease*

BY F. W. E. WAGNER, M.A., SC.D., LONDON, ENG.

EPULIS is the most familiar of the fibroid growths of the mouth. It is mentioned in this article because, though it may at first appear non-malignant, it frequently recurs and is then liable to take on malignancy. Epulis grows from the chronically-inflamed alveolar periosteum and has its roots just above the teeth. Occasionally it makes its appearance at some distance from the alveolus. The great majority of these tumours are associated with septic teeth and roots. On several occasions I have operated on epulis in an apparently edentulous jaw, and each time I found that some roots of the teeth had been left behind. There are two varieties of epulis; the purely fibrous, or simple, epulis, and the myeloid. A simple epulis is a smooth, red, fleshy mass, sometimes lobulated, elastic in consistency, which may be pedunculated or sessile; usually associated with a carious tooth. In the early stages the best treatment is to extract not only the carious tooth, but also the tooth on both sides of it, and to remove the affected portions of the alveolus and periosteum. If the removal has been free enough the condition will not recur. To remove one tooth and curette the socket is, in my opinion, a procedure that is practically useless; for it is seldom, if ever, really effective. In the later stages a partial excision of the jaw will be necessary; and for that reason I would emphasize the importance of losing no time about operating on such a tumour when the diagnosis has once been made.

Now, like all forms of myeloid growth, the myeloid epulis is only locally malignant. It is *not* a myeloid sarcoma. It forms a rapidly-growing, soft, dusky-purple mass which bleeds readily and goes on to ulceration. The importance of the early diagnosis in all such cases is evident. If the tumour is small, the treatment is on the same lines as that for simple epuli, save that it will probably be necessary to remove considerably more of the alveolus. The only rational treatment is a complete and thorough removal of the tumour, together with a piece of the bone to which it is attached, and the septic teeth or roots. Anything short of complete removal of all diseased tissue in every case where malignancy is suspected would be grossly

*Published by courtesy of the Dental Surgeon.

unfair to the patient. Once surgical interference is clearly indicated, no surgeon is justified in postponing operation, as it affords the patient the best, and perhaps the only, chance of recovery.

Epithelioma, or squamous-celled carcinoma, takes its origin from the epithelium of the part in which it grows; and is, therefore, always developed from the surface or from parts in contact with the surface of the skin or mucous membrane. A favourite seat of epithelioma is the orifice of some cavity where the skin and mucous membrane become continuous. It usually appears as a hard, flattened lump, the surface of which easily breaks down and ulcerates. It readily infects the nearest glands and they become the site of a similar growth. It is closely connected with simple inflammation; the continuous irritation of some foreign substance is an undoubted cause of the disease.

Epithelioma is commonly much less malignant than the other forms of cancer; that is, it does not destroy life so quickly, and after removal it returns much less speedily and very often it does not return at all. Hence, its removal is a matter of urgent necessity, and a very encouraging prognosis may be given.

Epitheliomata of the gum are frequently found in connection with decayed teeth. As a rule they commence on the outer aspect of the gum margin adjacent to a tooth which has been the seat of long-continued sepsis. In such cases it appears as if the chronic irritation had excited the growth of the tumour. These tumours are sometimes found in the hard palate and, in some cases, they are caused by the chronic irritation of a badly-fitting denture or the suction discs with which dentures are sometimes fitted. But a suction disc, *per se*, is not to be condemned; when properly fitted it will no more cause epithelioma than a properly fitted denture will cause it. This disease has a marked tendency to invade the antrum, and may then be mistaken for necrosis or caries of the jaw. Here, again, the only treatment which carries with it a reasonable hope of eradicating the disease is free excision of the whole of the affected part and removal of the upper jaw if the antrum has become involved. Some surgeons advise that, at the same time, the submaxillary lymphatics should be extirpated on account of the tendency of all cancers to spread along the lymphatics. However, in cases where the tissues of the cheek have been invaded, or where the growth has spread beyond the

limits of the antrum, one hesitates before recommending operation, since complete eradication is always a matter of uncertainty and difficulty, and often secured only at the expense of terrible mutilation and considerable risk to the patient's life.

The diagnosis of malignant disease of the jaw from a simple tumour does not present much difficulty. The rapid growth, greater pain and more abundant discharge from the nose, the associated enlargement of the lymphatic glands, and the tendency to spread and to encroach upon surrounding structures, all point to malignant disease. In some cases it is necessary to make an exploratory incision into the antrum in order to make certain of the diagnosis. More frequently the existence of a tumour is overlooked altogether for some time, and one prominent symptom, such as neuralgia, is treated without ascertaining the cause.

Epithelioma is frequently found in the lower lip and is said to be common among the smokers of clay pipes. It nearly always occurs in men. If removed early, an epithelioma may never recur. The primary sore of syphilis may resemble epithelioma, but it is smoother and flatter; it usually appears on the upper lip and epithelioma on the lower. Up to a certain point the growth of the primary sore is rapid and then stationary, whereas a slow, steady growth indicates epithelioma. Also the enlargement of the lymphatics occurs early in syphilis and late in epithelioma. If there is any doubt a few weeks' delay will prove the existence of syphilis by the appearance of a secondary eruption. The tumour can easily be removed in the early stages by a V-shaped incision, keeping the knife well away from the diseased tissue.

Epitheiloma of the tongue is very common. The etiological factors are of considerable interest. Here, more than in any other part of the body, irritation and inflammation play a most important part in encouraging malignant disease. But perhaps the most important factor of all is chronic suppurative periodontitis. This is almost self-evident when we remember that in such a case the tongue is constantly rubbing against pockets around the teeth from which pus is exuding, and the pus derived from necrotic bone has been found to contain some of the most virulent organisms known to the pathologist. A deep syphilitic ulcer is never difficult to recognize, but the superficial ulcer may closely resemble epithelioma. The main points of the differential diagnosis are as follows: Epithelioma generally appears on the side of the tongue. There is a

deposit of hard tissue at the base of the ulcer. The submaxillary glands are affected early and the sore will spread to the floor of the mouth or the arches of the palate. With the syphilitic ulcer there is absence of induration and the glands affected are the posterior cervical. At first the diagnosis is not easy in persons who have had primary and secondary syphilis, but, as the disease progresses, the presence or absence of other syphilitic symptoms will decide the matter. When a case is met with where the ulcer is situated at the side or base of the tongue in a patient over 45 years of age, with the typical enlargement of the glands, profuse salivation and impaired movements, there can be little doubt as to the diagnosis.

The only hope of cure lies in thorough and early removal of the growth, which has probably extended much further than one suspects, so that no half measures should be adopted. Many operations have been suggested and practiced from time to time, but most of them have fallen into disuse. For practical purposes the cases may be divided into two groups—those in which the disease is limited to one portion of the tongue and the muscular tissue is not extensively invaded, and those in which glands or other structures are obviously involved or the tongue itself is widely infiltrated. In cases of the first type an introbuccal operation will often suffice, combined with separate removal of the glands; in those of the second type more extensive extrabuccal procedures are required.

The intrabuccal method is that known as Whitehead's operation. Its essential feature is to snip carefully through the organ little by little by means of long-handled, straight, blunt-pointed scissors, picking up all the vessels as they are divided. By this means the loss of blood is reduced to a minimum.

The extrabuccal method is usually Kocher's operation, or some modification of it. The incision is commenced close to the lobule of the ear, run down along the anterior border of the sterno-mastoid to the great cornu of the hyoid bone and thence forward nearly to the middle line, and upwards to the symphysis. Kocher's lines of incision may be modified according to circumstances, provided that the essential principles are kept in view—the complete removal of the primary disease and of the infected glands, and the provision of effective drainage.

The close proximity of the fauces, pharynx, larynx, etc., to septic and inflamed gums and septic, carious teeth and roots renders them very commonly the site of chronic inflammation. Many of these chronic cases, when systematically neglected, develop carcinoma.

Tumours of the tonsil are almost always malignant in type, but are not very common. Epithelioma occurs as a firm, indurated infiltration rapidly spreading to adjacent parts and involving the lymphatic glands. It generally starts either in the root of the tongue or in the pillars of the fauces and presents a ragged, ulcerated surface with a hard margin and a sloughing base. It runs a rapidly fatal course, if left to itself. Lympho-sarcoma of the tonsil arises in the organ itself, usually after middle life; it presents a smooth, dusky-red appearance, the mucous membrane being stretched over it, and feels soft and almost fluctuating. In the early stages it may be freely movable, but it soon infiltrates surrounding structures and affects the neighbouring lymphatic glands.

The local treatment varies at different stages of malignant growths, but is more or less identical whether the disease be carcinoma, sarcoma or lymphadenoma. In the early stages, when limited to the tonsil, i.e., when it has not permeated the capsule, excision has been successfully performed from the mouth. However, when the glands at the angle of the jaw are enlarged and the folds slightly attacked, nothing short of Vohsen's operation is likely to succeed. An incision is made from the mastoid tip to the hyoid and then carried upwards over the angle of the jaw; the lingual, facial and ascending pharyngeal arteries are ligatured and the jaw divided in front of the masseter and the ascending ramus pulled strongly forward out of the way; this gives good access to the tonsillar bed; enlarged glands may have to be dealt with by additional incisions. When the disease demands a much more extensive operation than this, the chances of a successful radical removal are immensely reduced. When the growth nearly closes up the fauces, so as to interfere with swallowing, articulation and respiration, partial removal with the knife, galvano-cautery or surgical diathermy is justifiable and may give much temporary relief. Serious recurrent hemorrhage may follow the placing of a temporary or of a permanent ligature in the carotid.

Malignant disease of the deep or post-cricoidal pharynx, if diagnosed in the early stages, can be dealt with by excision of a part of the pharynx by lateral pharyngotomy, if the growth is limited to the posterior wall. When the back of the cricoid plate or the pyriform fossæ are invaded, the larynx must be removed as well.

The Bacterial Invasion of Enamel

C. F. BÖDECKER, D.D.S., F.A.C.D.



It has generally been accepted that enamel is an almost entirely inorganic structure. The author has submitted the theory, which has met with a certain amount of acceptance, that an organic matrix does exist in the enamel.

In the initial lesion the acid of decay acts on the enamel by attacking the cement substance and robbing it of a certain amount of inorganic salts. As a result, the rods are not so firmly held together, and it is easy to cleave such enamel with a chisel. If the stress of mastication strikes such carious areas of enamel with sufficient force, infinitesimal pieces of enamel chip off, thus forming a minute cavity. If the stress of mastication does not strike such an area, or if the force is not sufficient, the enamel remains for a long time morphologically intact and the penetration of the carious process continues.

The advantage of thorough, determined mastication of food can be readily seen. If dental caries does attack and partially disintegrate the enamel, thorough chewing will break down the weakened enamel, thus forming a minute self-cleansing cavity. Should, however, the individual not masticate intensely, the carious process may proceed unhindered into the depth, covered and sheltered by the partially disintegrated enamel.

It was previously thought that the bacteria penetrated the enamel by the dissolution of the cement substance. This does not appear to be so. The enamel rod sheaths and the cement substance appear to be somewhat more resistant to the action of the bacteria than the rods proper. Microscopical sections show the bacteria to have tunnelled into the core of the rod and to be enclosed in the enamel rod sheaths. The relative position of the food débris to the bacteria is important from a clinical point of view. The bacterial film completely lines the cavity of the tooth and is closely adherent to the ends of the partly destroyed enamel rods. The lactic acid, therefore, which endangers the enamel most, is that which is formed by the bacteria attached directly to the surface of the tooth. This conception of the manner in which dental caries progresses justifies, in certain instances, the clinical practice of thoroughly polishing labial or buccal areas of teeth when they are *first* and

very superficially attacked by dental caries. If these areas are carefully polished and all infected enamel is removed so that the bacterial film can find no retention, and if such places are kept clean by the patient, caries is not so likely to recur. As the food is lodged more externally and the bacterial film is closely adherent to the bottom and walls of the cavity, it is all the more difficult for the patient to stop the carious process by mere prophylactic measures. The food débris may be washed or brushed out, but the bacterial film adheres very tenaciously. That the bacteria tunnel into the rods offers them secure lodgment in the enamel; the bacterial films therefore remain in the cavity and the next meal the patient takes furnishes the bacteria with a further instalment of food, and they then continue the destruction of enamel.

An important fact noticed is that the enamel undergoes some preliminary change before the bacteria disintegrate the rods. This change is noted in certain specimens (prepared by the author's celloidin decalcifying method) by an increased affinity to the stain used to dye the specimen, and seems to indicate an added amount of organic matter in the rods themselves.

Another fact brought out by this investigation is that the organic matrix plays a role in the caries of the enamel.—*Dental Cosmos*.

Care of the Teeth



SIR WALTER FLETCHER distributed prizes at the London School of Dental Surgery, at the Royal Dental Hospital, Leicester Square, and opened the "John Hampton Hale Research Laboratory," yesterday*. Mr. Norman Bennett presided. Sir Walter Fletcher said that the new laboratory was undoubtedly a valuable addition to the school. It was an outward and visible expression, perhaps the first which the public had had an opportunity of noting, of a new and very striking movement in the dental profession.

He doubted whether the general public had any conception of the new policy by which members of the dental profession were themselves directly supporting and promoting professional education and research in dentistry. The public ought to appreciate the enlightened policy of the dental profession.

*From The Times, October 5th, 1927.

Dental practitioners were directly contributing to a fund for promoting two great movements, which, viewed narrowly, might appear most damaging to their immediate self-interest. Education was bound to bring into the competitive field against them the ablest and best-equipped rivals; and the aim of research was to prevent dental surgeons, so far as possible, from having any work to do at all. Could there be a more notable example of public-spirited altruism? The lead having been given by the dental profession, other professions might follow. If each doctor in the United Kingdom gave what each dentist contributed, there would be a fund of no less than £250,000 annually for medical education and research.

In framing their research policy the Dental Board had recognized that scientific work must have complete liberty of range if it were to be new and progressive. There were few problems of preventive medicine of more significance to the race than that of the proper development and preservation of the teeth. The Council he served had recognized that, from their beginning, and, so far as their means allowed, they had lost no opportunity of assisting work in what was a peculiarly difficult field. They welcomed the co-operation which the Dental Board offered four years ago, and now the two bodies are joined together in financing the schemes of research recommended and generally supervised by an investigation committee.

It was now almost a commonplace to say that the improvement of the teeth of the nation was one of the most urgent of the great outstanding problems of preventive medicine. The study of the attacks made on the teeth by particular agents of disease had proved before, and seemed still to prove, a relatively barren study. What had been needed, and what the committee had been giving their chief energies to obtain, had been better knowledge, not so much of dental disease, as of dental health; not so much of the specific disease that might attack the teeth as the conditions upon which natural resistance to disease depended. Recent work in this country had drawn increasing attention to the exquisite elaboration of the minute architecture of the teeth. Evidence had been accumulating that if the architecture were perfect the attacks or disease were prevented or minimized. The tooth might seem to be normal in colour and shape, and yet the microscope might show its construction to be faulty. Those considerations seemed likely to clear up, on further study, many puzzling problems of decay in teeth apparently, but only apparently, sound.

Recent work had been doing much more. It was bringing dental problems into line with those of the general physiology of the body and the science of nutrition. Clear experimental evidence had already been obtained that the normal architecture of the teeth, like that of the bones and other organs of the body, depended upon the right supply and balance of particular parts of the diet during their growth. Advances were all tending to bring preventive dentistry into new and closer relations with the general body of medical science. The hints we were fast gaining seemed to make it no rash speculation to say that the medicine of the future was in the lap of nutritional science.

Dental Instrument Sterilization



It is the purpose of this paper to summarize briefly from the many methods that have been suggested for sterilizing dental instruments, those procedures which are effective against all forms of bacterial contamination without differentiating between spore-bearing and vegetable cells. Methods are omitted whose efficiency is dependent upon some peculiarity of technique, or whose reliability has been questioned.

PRE-STERILIZATION TECHNIQUE.

All instruments should be brushed vigorously while being held under a stream of running water, using soap as a detergent to remove blood, pieces of tissue, pus and other adherent matter. The bacterial contamination will be largely eliminated during this process. A stiff-bristled brush about the size and shape of a nail brush is convenient for this purpose. It is important that the bristles be in good condition, as the efficacy of the cleansing depends upon the thoroughness with which the crevices in the instruments are cleansed. As soon as signs of wear appear, discard the old brush for a new one.

AFTER-STERILIZATION PRECAUTIONS.

A sterilized instrument remains sterile only as long as it does not come in contact with bacteria. Sterile towels must be used for drying instruments and sterile forceps for removing root-canal points from the sterilizer. The dentist who is constantly alert to prevent contamination of his instruments will

develop an "aseptic sense" that will aid him to achieve and maintain strict asepsis.

BOILING.

All metal and glass instruments, including mouth mirrors, may be sterilized by boiling for ten minutes—but the water must boil for ten minutes if sterilization is to be assured. To prevent rusting, the water should boil for five minutes before the instruments are immersed, or sodium hydroxide should be added to the water if the instruments are to be placed in water which is not boiling. Sodium carbonate can also be used to prevent rusting, but a sufficient quantity to make a concentration of 1 per cent. is required. As this requires measurement, the use of hydroxide is preferable.

At the expiration of the ten minutes the instruments should be removed promptly and dried with a sterile towel. For those whose construction makes drying difficult, immersion in 95 per cent. alcohol for ten minutes, followed by removal to the cabinet without drying, will remove the moisture.

One type of sterilizer has been constructed in such a way that the instruments may be dried in the sterilizer, thus eliminating the use of a sterile towel, an article not always available. As the process of sterilization and of drying are automatic, this sterilizer appears to afford a decided convenience to its user.

GLASS SALIVA EJECTORS.

To avoid the danger of breaking these instruments by boiling, sterilize them by immersion in 10 per cent. solution of hydroxide for thirty minutes. This solution has the added advantage of dissolving any organic debris, such as mucous, which may be present in the ejector. The ejector must be thoroughly washed before it is placed in the mouth of a patient, as the solution is very caustic. Also the ejector should be removed from the solution with forceps, or rubber gloves, to protect the hands.

As the sodium hydroxide is rapidly converted into sodium carbonate when in contact with the air, the solution should be freshly made each day.

STERILIZATION DURING OPERATION.

Occasionally during the course of an operation the dentist wishes to sterilize the instrument he is using. Dipping in

alcohol and burning it off by igniting the alcohol will destroy all the non-spore-forming organisms. Fortunately, spore-bearing bacteria are rarely encountered in the mouth, so the method is satisfactory for the purpose indicated. When absolute sterility is essential, burning off a surface with an inflammable fluid cannot be relied upon.

STERILIZATION OF THE HAND-PIECE.

This is a particularly difficult implement to sterilize. Boiling removes the oil, necessitating re-oiling, and even the most careful treatment frequently fails to prevent rusting. Chemical disinfectants offer similar difficulties. Appleton has, however, solved the problem in a very satisfactory manner, and he is quoted as follows:—

“Wipe the hand-piece free from moisture; be particular in this regard to the parts in contact with the bur, leave the bur lock open, immerse completely in mineral oil at 185° C. for five minutes, or 175° C. for ten minutes, or 165° C. for fifteen minutes. It is immaterial from the bacteriological standpoint which temperature is chosen, as long as the time of exposure is sufficient. The temperature during the sterilization should not fluctuate more than three or four degrees Centigrade, plus or minus. If the instrument is removed as soon as the necessary time has passed, it is very easy to wipe it free from oil with a sterile towel. The heat is evidently sufficient to volatilize any thin film of oil that might remain and otherwise soil the hands.”

At about 140° C. mineral oil begins to smoke, and care must be taken that it does not come in contact with a free flame, as fire may follow. It does not char, however, even at higher temperatures. The oily odour is not offensive, but sterilization should be conducted in the laboratory rather than in the operating room.

MOUNTED STONES.

Carborundum discs, wheels, and stones mounted in porcelain can be boiled. Those with a rubber, cement or shellac base must be sterilized in 5 per cent. phenol solution for one hour, followed by 99 per cent. alcohol to remove moisture.

ROOT-CANAL POINTS.

Cotton, paper, or gutta-percha root-canal points may be sterilized by Prinz's method. This consists of attaching an

inch-long section of a cotton roll to the inside of the cover of a screw-cap bottle. Sealing wax is a convenient agent to use for this purpose. A few drops of dichloramin-T solution are placed on the cotton, the points are placed in the bottom of the dry bottle, the cap is screwed on and the sterilizer is complete. The dichloramin-T solution must be renewed every month.—*Bacteriological Survey.*

Antiseptics*

W. Moss, H.D.D., L.D.S.



WISH to include the word germicide in the above title. In "Muir and Ritchie," antiseptics are defined as chemical substances which are able to kill bacteria. In "Hewlett," one finds that germicides are defined as substances which kill bacteria or germs, and antiseptics as substances which inhibit bacterial growth and prevent putrefaction and sepsis. It is on pure cultures that the power of an antiseptic to kill organisms is judged. A standard solution of carbolic acid is often used in order to compare the germicidal effect of other disinfectants. With this, the Rideal-Walker method, one speaks of the carbolic acid co-efficient of an antiseptic. Other methods are also in use for comparing the germicidal effect of various disinfectants. In general practice one does not deal with pure cultures, but with organisms associated with albuminous and other extraneous material; thus the results observed in practice will not be those obtained in the laboratory, for these substances will considerably modify the action of the antiseptic upon the organisms. The antiseptic has first to penetrate the albuminous material, thereby delaying action. Also the disinfectant frequently absorbs the albuminous material, thus reducing its action on the organism. Spores are much more resistant to antiseptics than are the ordinary vegetative forms, so that although the latter may be killed in a few minutes it may take hours for the same disinfectant to kill the spores of that organism.

The most important antiseptics are:—

A large number of metallic salts, certain acids, certain

* Paper read before the North of England Odontological Society, Jan., 1928.

oxidising and reducing agents, a large number of aromatic substances, and most volatile oils.

The action of an antiseptic is not fully understood, but the degree of ionisation of a substance bears some relation to its antiseptic properties—ionisation being the dissociation of a substance when in solution in water. The greater this dissociation the more active is the substance as an antiseptic. This dissociation may be greatly influenced by the addition of other substances.

The more readily an acid combines with an alkali the greater its antiseptic powers. Reducing and oxidising agents have probably been over-rated as antiseptics, the effect being due, probably, to their acid action. In the case of potassium permanganate it has been shown that the greater amount of oxidation takes place after the organisms have been killed.

Strong solutions of antiseptics, acting for a short time, have the same effect as weaker ones acting for a longer time. Although this is so, a 5 per cent. solution of carbolic acid will act better than in higher concentrations. This is thought to be due to the rate of penetration into the bacterial cells, the rate decreasing as concentration increases, above a certain limit. The efficiency of carbolic acid is increased by the addition of sodium chloride.

Organisms in masses are less readily acted upon by antiseptics than when they are isolated. This is obvious, as there is a greater depth of organic material to be penetrated. The disinfecting process is a gradual one. In the early stages organisms are killed in large numbers, but later they are killed more slowly.

According to Hewlett, disinfectants mixed with oil, glycerine, or alcohol, lose some or all of their disinfectant properties. I have not seen any reason given why alcohol should lessen the antiseptic qualities, but it may be due to the alcohol affecting ionisation. Of the fats, lanoline seems most compatible with disinfectant power. The efficiency of a disinfectant is considerably influenced by temperature, decreasing as the temperature rises up to the optimum temperature of the organism. Above this temperature the efficiency of the antiseptic may rise rapidly, two or three degrees making a marked difference.

In some cases two antiseptics mixed together may have a more powerful action than either separately.

Bacteria of a given class may be much more sensitive to one antiseptic than to another, though both antiseptics may be equally effective on a second class of bacteria.

As far as possible an antiseptic should possess the following qualities:—

(1) It should form a stable solution with water in all proportions.

(2) It should be stable in the presence of organic matter.

(3) It should have a high solvent power for grease.

(4) It should be stable at all reasonable temperatures.

(5) It should not act on metals.

(6) It should not destroy or stain fabrics.

(7) Should not be caustic or toxic.

There is probably no antiseptic which will fulfil all the above requirements.

Antiseptics may be divided into groups, of which the following are a few:—

The halogens—chlorine, iodine and bromine—which are powerful antiseptics, chlorine probably being the most used, as it is cheap to produce.

Hypochlorous acid and hypochlorites are used, one of the chief preparations of these being eusol, which was used a good deal during the war. On more than one occasion I heard this antiseptic discussed, and opinions differed very considerably as to its merits. One suggestion was that where the wound could be dressed and covered with American cloth to prevent evaporation eusol was most useful, but was almost useless as an open dressing. Personally, I treated several cysts with it, after scraping away the lining membrane, and found it very efficacious. When an organic substance containing the NH group is acted upon by a hypochlorite the hydrogen is replaced by chlorine, with the formation of a group known as the chloramines. In the *British Dental Journal* of June, 1925, there was an article written about the antiseptic known as di-chloramine T, which is insoluble in water but soluble in chlorosane, this latter consisting of paraffin heated and saturated with chlorine gas. The di-chloramine T, when it comes into contact with the toxic protein, gives up some of its chlorine, so that the protein becomes an antiseptic. Paraffin protects wounds, and its use, even without any containing antiseptic, is beneficial. Chloramine is a good antiseptic, but is not soluble in paraffin, and it was in the search for a substance with the

properties of chloramine, but soluble in paraffin, that the dichloramine resulted. Dr. Livingstone has obtained splendid results from its use.

Iodine is a most useful antiseptic, and has the property of penetrating tissue much more than many others.

Perchloride of mercury: This is the most used of the salts of the heavy metals, and is regarded as one of the most powerful antiseptics. In the case of spores, an albuminate forms which, whilst not killing the spore, prevents it from developing. By adding 0.5 per cent. sulphuric or hydrochloric acid the spores are killed more readily. The biniodide of mercury is also a powerful antiseptic when dissolved in potassium iodide, and is not so sensitive to albuminoids as the perchloride.

Potassium permanganate: In using this antiseptic one should consider whether there is much organic material present. If there is, its oxidation will throw much of the antiseptic out of action, and only a little may be left to act upon the organism. It, however, possesses non-irritating properties, and on this account is frequently used as a throat gargle.

Carbolic acid is the most extensively used of the aromatic series. The vegetative forms of all ordinary bacteria are killed in less than five minutes by a 2 to 3 per cent. solution, but anthrax spores take much longer, about three or four days. These spores are not likely to be present when operating, but tetanus spores may be, and these take as long as fifteen hours to destroy. Carbolic acid is not affected much by albuminoids, and is stable in the presence of organic material. Lysol is probably superior to carbolic acid, as, owing to its nature, grease and dirt are dissolved by it.

Iodoform is a useful antiseptic, and probably owes this property to its being broken up by bacteria, thereby setting free iodine. The mouth is a suitable area for its use, as there are generally present lots of reducing bacteria to break it up.

Aniline dyes: Many of these are powerful antiseptics, although their action varies to some extent on different groups of bacteria. Two of the best known of this group are acraflavine and proflavine. One thing that is peculiar to these is that their power is increased in the presence of serum, and again they have but little inhibitory action of phagocytosis, whereas most antiseptics interfere with phagocytosis to a marked extent. In the case of acraflavine action is very slow, but it will kill streptococcus aureus in a dilution of 1 in 100,-

000. It is generally used in a strength of 1 in 1,000. These two antiseptics have only small toxic effects, both local and general, especially acraflavine.

Auramine—more powerful than acraflavine—is one of the more recent dyes. I have tried it in my own surgery in a watery solution, but I cannot say that I have had any startling results from its use. It may be that I have not used it in the proper manner. It may be incorporated in soap without its action being impaired. Made up into a 2 per cent. solution it is known as glauramine.

Soaps are not compatible with most antiseptic substances, and, according to Hewlett, the carbolic soaps of commerce are generally worthless. Biniodide of mercury can be prepared with soap, and is useful in the surgery. I have used it myself, but it appeared to affect the skin of my hands, so I did not continue with its use.

Chloroform is said to be a powerful antiseptic, but must be used in a strength of not less than 1 per cent. The only reason that I can find for not making considerable use of it is the fact that it is costly, although the cost does not appear to be prohibitive. Antiseptics to some extent are selective, e.g., salvarsan and the spirochæte; quinine and the malaria parasite.

Monsol is one of the new antiseptics, for which rather wonderful properties are claimed. It consists of oils, somewhat resembling the phenol group; but it is stated that they belong to a previously unknown group, and are prepared from coal by a particular process. These oils are called Mond oils, and do not yield benzol, toluol, naphthas and the solid hydrocarbons, naphthalene and anthracene, all of which are characteristic of ordinary coal tar oils. It is claimed for monsol that it possesses the following properties:—

(1) A high germicidal efficiency, almost unimpaired by the presence of organic matter.

(2) Remarkable freedom from the irritant effects common to antiseptics of the phenol type.

(3) A high degree of penetrative power.

(4) A selective action against certain organisms.

(5) Low toxicity.

In concentrations higher than are necessary for effective action it is harmless to the tissues, and does not impair their normal recuperative power. Monsol does not corrode instruments. The results of experimental intravenous injections are

most encouraging, and it appears to have a possible future in such conditions as septicæmia. It is claimed for monsol that it is a more powerful antiseptic than either lysol or phenol. It exerts a selective action on streptococci, whereas phenol is selective for the coli group of bacilli. On rabbits monsol is six times less toxic than lysol. The carbolic co-efficient of monsol germicide is 4.5, and that of monsol capsules 22.5. I have used this product in my surgery, but not for a sufficiently long period to form an opinion. It would appear from the foregoing that discretion should be used when deciding upon an antiseptic for a particular case. Many dental surgeons use the same antiseptic for all possible conditions in the mouth, such at least is my impression.

Perhaps it would be as well to consider whether an antiseptic, as for example carbolic acid, has some other property. This latter has a marked anæsthetic action in post-extractional pain, and I sometimes recommend it when pain is present. Again, when a non-irritating antiseptic is required, boracic acid is very useful, particularly when combined with glycerine, and although its action is weak it has a sedative effect upon the mucous membrane of the mouth. In certain cases potassium chlorate is very useful, and when used in the form of tablets has a beneficial effect internally as well as locally, as for example in ulcerative stomatitis. One often reads that the use of iodoform is avoided because of its unpleasant odour, but this scarcely seems justifiable if it is regarded as a useful product. Similarly one could disregard many other medicinal agents.

A word about antiseptics and sterilisation. When in conversation with a bacteriologist I asked the question whether one really could sterilise instruments satisfactorily by means of antiseptics, without recourse to boiling, and the reply was—provided one could be certain of removing all organic matter from the instruments, then sterilisation by such a method could be quite satisfactory, but that boiling was always insisted upon for students, as heat was an absolutely certain method. With other methods one had to be more thorough. In sterilising instruments carbolic acid and lysol are most frequently used, especially the latter, as, owing to its soapy nature, it will dissolve any minute amount of organic matter that may not have been removed during the washing. Alcohol is also very useful for certain instruments, but is not so thorough, and takes

much longer. Sometimes it is advisable for the dental surgeon to sterilise the hands, and this may be done by first washing with hot water and soap and thoroughly rinsing, then treating the hands with either 1 in 40 carbolic acid or 1 in 2,000 perchloride of mercury. Soaking the hands with 1 in 1,000 solution of perchloride of mercury in alcohol is also very good, the alcohol rapidly evaporating, thereby leaving the hands quite dry. In the case of very dirty mouths I sometimes soak my fingers to the depth of 1 inch in iodine; certainly this stains them, but the staining is soon removed by washing.

One wonders whether spiritous liquors are not more penetrating than watery ones. In the case of iodine the tincture is more penetrating than a watery solution, and a considerable amount of the benefit obtained is probably due to the action of the spirit. It has been suggested to me that, in many cases, the spirit does more good than the substance in solution. In surgery there has been a good deal of controversy between the advocates of antiseptic and aseptic methods. There is no doubt that antiseptics do impair the vitality and reparative power of the tissue, and for this reason antiseptic procedures should be replaced by aseptic ones when possible. In the latter method the wound should be irrigated with sterile physiological salt solution. In regard to septic wounds, "Wright maintains that no antiseptic can be applied to a wound in sufficient concentration to destroy microorganisms without causing inhibition of phagocytosis and other natural defensive mechanisms; and that antiseptics therefore do more harm than good."

I am sorry that I have not been able to give you anything original, but I do hope that I have in some cases been able to bring back to your memories a few points that may have been forgotten in the stress of a busy practice.

Classmates of 2T3, University of Toronto



WELL, what do you think of the booklet containing the "Nominal roll of the Class of 2T3"? We hope it is whizz bang enough to blow you out of your old dugout and start to feel a sort of hankering after that old Class Spirit and Fellowship of 2T3. Then, when you begin to feel rather reminiscent, just turn over to some of your old pals on the "Nominal Roll", and drop them

a line to tell them, "When the roll is called in Toronto, you'll be there." You can do a lot to make this reunion in June a real success, if you just do a little propaganda stuff, independent of the harassing fire from Headquarters.

We heard from Gordon Gropp, Columbus, Ohio, this week, and he says the "Nominal Roll" is a snappy idea, and assures us that he is all set for the Reunion. Shorty Towner also writes in to say the boys from Detroit will be out in full force. Purcell from Pembroke, drops us a cheery line—Jimmy Mandeville is coming, too. Dick McDougall, from Moose Jaw, Saskatchewan, is doing good work in the West, and although it is a long trip for some of the boys, we figure that this whizz bang Reunion is something to look forward to. In fact, letters of regret will only be in order from those who are practicing in Timbucktoo, the Fiji Islands and Siam.

We have a Programme Committee functioning in Toronto, and they are planning to put on the smartest and snappiest Class Reunion programme so that you will feel it is not just a one-day banquet affair, but something a little unusual.

If you have any suggestions, send them along as soon as possible for your committee to work on.

Don't forget to mark off your appointment book—from June fourth to seventh, and write across it, "Ontario Dental Convention and 2T3 Reunion."

We still have a few copies of the "Nominal Roll", and if you didn't get yours, just let us know and we will send you another.

R. E. BRAYLEY,

Secretary-Treasurer,

86 Bloor St. West, Toronto.

The 2T6 Granuates' Club, University of Toronto



HIS club was formed in February, 1927, with A. J. Vince as President, and E. A. White as Secretary-Treasurer, for the purpose of keeping together the members of 2T6 (who reside in or near Toronto), for mutual benefit and social fellowship. Also, to provide any possible assistance to members of 2T6, outside of Toronto, in case of reunions or conventions, etc. Enthusiastic meetings

have been held regularly every two months at Hart House during the past year, with several very interesting speakers.

We will be glad to co-operate with, and help, any out-of-town members of 2T6 who intend coming to the Canadian Convention, or who intend to visit Toronto at any time.

Get in touch with us!

A. J. VINCE,
President.

E. B. SISLEY,
Sec'y-Treas.
1363 King St. West, Toronto.

Shall We Continue the Study of the Classics ?

N the opinion of many educators and statesmen it is desirable that the study of the classics should be continued in American schools and colleges together with practical education, says *The American Review of Reviews*. There has seemed to come an awakening of the higher principles of personality through the study of the classics that could not be obtained by materialistic or scientific education. According to our best authorities, the old Greek principle of "nothing too much" must prevail, or our rush for efficiency will lead away to the dust heap of the nations that have fallen away from the inviolable ideals of human conduct.

At a recent conference on classical studies in liberal education held at Princeton University, four American statesmen presented opinions in favour of classical studies. They were:

Ex-President Taft—I believe that the success of the continental systems of education and of that in Great Britain establishes the fact that the classical studies are important as an essential element in the best liberal education. In addition to the mental discipline which study of them affords, they are most helpful in the manner of correct English style, in laying sound foundations for grammatical construction and in furnishing a basis for the study of all modern languages.

Ex-President Roosevelt—A cultural education must include the classics. Every liberally educated man should be familiar with Greek or Latin, and, if possible, with both, as well as at least one of the great modern culture languages and a wide sweep of general history and pre-history.

Robert Lansing—I am convinced that the study of the classics furnishes a man with mental processes which he cannot otherwise acquire, that it elevates him above the materialistic and gives him a loftier conception of the realities.

Elihu Root—I am a firm believer in the value of studying Greek and Latin. Although in after life one may forget much that he has learned, he can never lose the influence on his character.

The *Classical Weekly* (New York) of May 21 quoted remarks in favour of classical education made by Dr. Albert Shaw before a meeting of the New York Latin Club on November 11 last. Dr. Shaw appealed to the classicists to vision their higher duty "towards the general and permanent standards of American scholarship and culture," the inculcation of classical ideals:

You understand the intrinsic nature of those ideals; the liberty of mind and spirit, the largest range of personal freedom for every man that could be made compatible with a like freedom of his fellows, the dignity of the human soul, the equality before the law of the highest noble and the humblest peasant, immunity from both economical and political oppression in every form, the dominance of intellectual and spiritual forces, and, above all, the power of knowledge and the right of every child to the heritage of the ages.

It would be tempting, if there were time, to identify the pursuit of these ideals with the fruits that they brought forth—their outward manifestations in distinctive objective forms. They give us codes of law, coming down from classical periods, enriched and revised as human society becomes ever more subject to right rules of living. They give us order and symmetry in a hundred ways as respects the general scheme of things. They give dignity to life, permanence to domestic institutions, form and stability to architecture. They express themselves in appropriate language, and with such breadth and depth of meaning that utterances thus made have permanence. And, behold! their literature has a quality that we call "classical." Their developed sense of symmetry and beauty creates forms that we call "artistic," and that so accord with the general ideas I have described as to have abiding recognition. And, also, we call them "classical."

But what has been the greatest mission in the world of the truly classical spirit? It has been the emancipation of the human mind and the uplifting of individual men and women to some kind of conformity with high standards. In the nature of the case, the ideal had to seek universal application. It had to find for men religious freedom. It had to work for their political emancipation. And not less did it have to seek their economic enfranchisement so that the spirit might not be crushed by toil and disease and poverty.

Nothing could be more certain than that students of politics and society will never forget Plato, or abandon the study of antique life. And so in manifold ways science comes to the aid of classical study. All progress in knowledge and truth, whether scientific or typically cultural, rests purely upon the energy of the mind and the aspiration of the spirit. We must lay aside, if we can, the contentious attitude and seek to be ministers to real progress. The classical languages are an essential part of the history of thought and of civilization. It does not follow that they must be studied at exact ages, or by certain proportions of the very young. The study of mathematics as pursued is even more hopelessly out of keeping with educational psychology. There is such a thing as destroying the possibility of classical training in a given group of boys by the wrong way of enforcing that questionable tradition, the teaching of Cæsar's Commentaries on the Gallic Wars. We force Xenophon's military stuff upon boys, when Xenophon's delightful account of the boyhood of Cyrus might make any American boy willing to study Greek.

If I were teaching my thirteen-year-old boy Greek to-day, I would bring into the house our eloquently written New York daily Greek newspaper, and import current materials from Athens. I would set passages from the speeches of Venizelos alongside of passages from Demosthenes, in order to let the boy feel his way

ORAL HEALTH for April, 1928

into the conception of the permanence of the Greek tongue. And then I would try to make him feel the marvellous persistence of those European standards of beauty and truth and philosophy that have come to us across the centuries, out of the best days of Greece. . . . The truth is that our literature, as well as our language, our way of thinking, our general aims and ideals, have all of them the classical impress. We are lifting a nation up to more equal standards of human life and welfare; and we shall have a better chance for a classical study, and for thorough scholarship in all fields, in the days that are before us than at any time in the days that are past and gone.

In the *Atlantic Monthly* for June and July Professor Paul Shorey makes a vigorous rejoinder to those modern opponents of classical studies whose propaganda he terms "The Assault on Humanism."

To the argument that modern literature is not inferior to the classics he replies:

That is a consolation for those who cannot have both. But our contention is precisely that the boy who goes to college, or even through the high school, will understand modern literature better for knowing even a little Latin. There is no real incompatibility between knowing Latin and acquaintance with modern literature. The professors of classics would cheerfully stand a competitive examination on modern literature with the professional modernists at any time.

You must not argue that Latin is useless, without discriminating the various meanings of utility, the higher and lower utility, the immediate and remote utility, direct and indirect—and unless you are prepared also to abolish for high school and college students all studies that are useless in the precise sense in which the term applied to Latin.

Programme of the Joint Convention of the Canadian and Ontario Associations

KING EDWARD HOTEL - - - - - TORONTO.

June 4, 5, 6, 7, 1928.

Monday, June 4th.

9 a.m.—Registration.

1.30 p.m.—Address of welcome: Mr. Sam McBride, Mayor of Toronto.

Announcements.

President's Address: Dr. A. E. Webster.

Memorial.

Diet and Dental Diseases: Dr. Sherman Davis, Indianapolis.

Developmental Defects and Caries: Dr. Thaddeus P. Hyatt, New York.

5.30 p.m.—June Garden Party: Donalds Farm. (Complimentary.) Arranged through the kindness and courtesy of Mrs. D. A. Dunlap. An opportunity to

ORAL HEALTH for April, 1928

see one of the world's most wonderful farms—
beautiful flower gardens—prize stock. Supper—
Aquatic Sports—Games—Entertainment.

Tuesday, June 5th.

9 a.m.—Clinics.

Radiodontia: Dr. Howard R. Raper, New Mexico.
Periodontia: Dr. Justin D. Towner, Memphis, Tenn.
Partial Dentures: Dr. Edward Kennedy, New York.
Full Dentures: Dr. R. O. Schlosser, Chicago.
Treatment of Developmental Defects in Children's
Teeth: Dr. Thaddeus P. Hyatt, New York.
Local Anaesthesia Simplified: Dr. W. B. T. Amy,
Toronto.
Various types of Abutments for Vital Teeth—Method
of expanding wax pattern and investing to com-
pensate for shrinkage of gold: Dr. O. S. Clappi-
son; Toronto.
Orthodontis and the General Practitioner: Dr. S. A.
Moore, London.
Dental Diagnosis for Children: Dr. A. D. A. Mason,
Toronto.
(a) A complete Mouth Examination:
(b) Economics: Dr. R. G. McLean, Toronto.
Taking an Impression: Dr. J. A. Bothwell, Toronto.
Porcelain in Operative Dentistry: Dr. J. N. Stewart,
Hamilton.
Porcelain in Prosthetic Dentistry: Dr. A. A. Stewart,
Toronto.

12.15p.m.—Class Reunion Dinner, Crystal Ballroom. Promin-
ent Speaker—Community Singing—Entertain-
ment.

2 p.m.—Meeting: Canadian Dental Association.
Full Dentures: Dr. R. O. Schlosser, Chicago.
Partial Dentures: Dr. Edward Kennedy, New York.

6.30 p.m.—Dinner Dance, Crystal Ballroom.
Dinner—Delightful Diversion—Dancing.

Wednesday, June 6th.

9 a.m.—Clinics. Same as Tuesday.

12.15 p.m.—Round Table Conferences:

Subjects to be discussed will be published and mem-
bers are requested to indicate in advance the table
at which they would like to have a place.

2 p.m.—Meeting: Canadian Dental Association. Election
of Officers: Ontario Dental Association.
Preventive Dentistry: Dr. R. W. Bunting, Ann Arbor,
Mich.

6 p.m.—Fraternity Dinner — Class Reunions — Theatre
Parties.

Thursday, June 7th.

9 a.m.—Individual Table Clinics:

ORAL HEALTH for April, 1928

Clinicians: Dr. I. H. Ante, Toronto; Dr. R. H. Atkey, St. Catharines; Dr. A. B. Babcock, Toronto; Dr. H. G. Bean, Toronto; Dr. G. F. Beldon, Toronto; Dr. J. A. Bothwell, Toronto; Dr. C. E. Brooks, Toronto; Dr. C. G. Chapin, Toronto; Dr. F. L. Cole, Toronto; Dr. D. C. W. Coupland, Ottawa; Dr. J. D. Craig, Peterborough; Dr. W. A. Crich, Toronto; Dr. H. H. Cummer, Toronto; Dr. W. E. Cummer, Toronto; Dr. T. W. Dawson, Toronto; Dr. J. C. Devitt, Bowmanville; Dr. J. H. Duff, Toronto; Dr. G. V. Fisk, Toronto; Dr. E. A. Grant, Toronto; Dr. E. T. Guest, Toronto; Dr. G. A. C. Gunton, Toronto; Dr. J. W. Hagey, Kitchener; Dr. F. C. Husband, Toronto; Dr. L. D. Kay, Kirkland Lake; Dr. W. J. Kerr, Toronto; Dr. Margit Kinsman, Sarnia; Dr. J. S. Lapp, Toronto; Dr. W. J. Laker, Toronto; Dr. A. J. McDonagh, Toronto; Dr. J. A. McDonagh, Toronto; Dr. L. A. McLachlan, Ottawa; Dr. C. E. Pearson, Toronto; Dr. W. K. Pendergast, Toronto; Dr. F. D. Price, Toronto; Dr. J. E. Rhind, Toronto; Dr. H. G. Robb, Toronto; Dr. W. G. L. Spaulding, Toronto; Dr. A. S. Thomson, Toronto.

The London Dental Association will give a special clinic on Amalgam.

12.15 p.m.—Annual Meeting: Canadian Dental Hygiene Council

1.30 p.m.—Annual Golf Tournament: Canadian and Ontario Dental Association Cups to be competed for.

8 p.m.—Convocation: University of Toronto.

Registration Fee for all dentists in Canada, \$10.00.

Dentists from United States will be welcomed as guests.

Members of the profession from outside of Ontario will be expected to pay the Ten Dollars Fee, and this money will be forwarded to the Secretary of the Canadian Dental Association.

Further information may be secured by communicating with Dr. Fred J. Conboy, Secretary-Treasurer, Ontario Association, East Block, Parliament Buildings, Toronto, Ont.

The Total Number of Dental Students in Canada and the United States



THE accompanying summary presents returns relating to attendance, etc., as recently submitted by dental schools to the Carnegie Foundation for the Advancement of Teaching:

(a) The *total attendance* of undergraduate students has been decreasing annually in the United States since 1922-23, when the number in 46 schools was 13,099. In Canada there has been an annual decrease since 1920-21, when the number in 5 schools was 1,249.

(b) The *first-year* students are more numerous this year

ORAL HEALTH for April, 1928

than last year, when, however, their number was very small. There will probably be an annual increase of first-year students, though perhaps slowly, to a new maximum.

(c) The number of *graduates* will decrease in 1928, 1929 and 1930, but thereafter will probably increase annually, though perhaps slowly, to a new maximum.

(d) The observed decreases are apparently due chiefly to the lengthening of the total period of study, after graduation from high school, from 4 years to 5 or 6 years. The Rochester University School of Medicine and Dentistry, founded in 1925, requires for the D.D.S. degree a minimum of 7 years of study after graduation from a high school. It has no dental students.

(e) Two additional dental schools were discontinued in 1926. Two more will close in 1929.

ATTENDANCE : DECEMBER, 10, 1927.

School						Graduates	
	Predental	First Year	Second Year	Third Year	Fourth Year	Total	1926 1927
CANADA—							
Alberta.....	16	11	8	12	7	54	 7
Dalhousie.....	11	8	10	8	5	42	None 6
McGill.....	5	6	4	12	11	38	24 30
Montreal.....	16	12	9	19	30	86	45 31
Toronto.....	24	58	61	54	60	257	91 62
Total.....	72	95	92	105	113	477	160 136

A Plea for Prevention

DOCTOR STEWART, MANITOBA SANATORIUM.

*"And so from hour to hour we ripe and ripe,
And then from hour to hour we rot and rot,
And thereby hangs a tale."*

—As You Like It.



HE best cure, however, for most ills is prevention; and that is very true of the ills we have been considering. Physicians, like other sensible people, admit this principle very readily in theory, but its practice is a different matter. The whole tradition, training and experience of our profession has been in cure and not

prevention. We have not been architects and builders of beautiful temples of health, but patchers up and piecers together and general tinkers of indifferent health structures that have become dilapidated or fallen in ruins. When we get our true place in the scheme of things, when 'doctor' will really mean 'teacher', when prevention will really be considered a better practice than cure, a good many of these distressing septic conditions will be prevented, and so will not need cure. . . .

"A short time ago I saw a little girl of eight, undersized, sallow, unable to go to school, coughing up a cup of foul smelling sputum each day; unwelcome anywhere, even in her own home; likely incurable, growing up into a life almost as distressful as that of the mediæval leper with his clapper and bell and his warning cry, 'Unclean.' Long before the riping has finished the rotting has begun. This pitiful little girl has coughed for five years, since she had whooping-cough at three. An extra week or two of convalescence might have prevented this horror. Even at the end of the first year two months in bed might have stopped it. Now, nothing can stop it but death, which, as she gets older, she may often long for. We will cure these conditions, of course, if we can; but prevent them *we must.*"

PERIAPICAL DISEASE.—The argument that the diseased periapical area will fill in with healthy tissue under proper therapeutic root canal treatment, and that a healthy condition will be re-established if the cementoblasts are alive, is, in the writer's opinion, unsound, for the whole proposition hinges on whether or not the cementoblasts are alive, and we have no way that can be considered practicable of determining this. Therefore, we have no right in gambling with the patient's health in such an uncertainty. On the other hand, when we have pulpless teeth where the apical tissues are intact, the treatment applied is quite different. Owing to the fact that there is still a question as to the actual apical condition, though our x-ray evidence is negative, yet in cases of lowered vitality, in order to give the patient's health the benefit of any doubt, my opinion is that if, after a consultation between the internist in charge, the patient and the dentist, it is felt best that such teeth should be removed, then we should lend our active co-operation to bring this about.—*E. S. Best, in Pacific Dental Gazette.*

PUBLIC EDUCATION DENTAL HEALTH

"The public has decided it wants health talk and means to get it! The lay press is the most powerful medium of instruction for the public in health matters. We must do our best to secure its co-operation!"—Sir Thomas Horder.

IN this department each month will be published short articles suitable for use in the public press. The material has been authorized by the Oral Hygiene Committee of the Ontario Dental Association, and members of the profession may feel free to arrange for its publication in the local papers or magazines.

FREEZING THE GUMS.



WHEN your dentist told you that your tooth must come out, your first question was, perhaps, "Are you going to freeze it?"—and having it frozen, you experienced probably no pain at all.

Now, just how was this accomplished?

What your dentist did was to employ a local anæsthetic to prevent any pain. There are two types of local anæsthetics—paralyzant and refrigerant.

The refrigerant, as its name implies, is a substance that causes rapid extraction of heat from the tissues—thereby producing diminished sensation; the temperature of the tissues is rapidly lowered and thus the nerve endings are rendered incapable of receiving painful impulses.

The paralyzant—as it suggests, is a drug that has a paralyzing action upon nerve tissue, and which, when injected into an area, possesses the power of rendering that part insensible to pain. This is the type of local anæsthetic most commonly employed, and, following an injection into an area, the tissue becomes white or blanched, the peculiar tingling sensation, followed by numbness, such as you may have experienced in frost-bite, and so, "freezing".

Local anæsthesia is growing in popularity steadily and surely, since, employing it, the promise of painless dentistry can be made and kept.

Where the person present for dentist treatment, whose ill health may not allow the employment of a general anæsthetic agent, or who is nervous about losing consciousness, local anæsthesia may be used with perfect confidence and without fear of harmful results. It should be, however, stressed that

the person seeking such services should do so without nervousness or dread, fully confident that "freezing" is no longer an ordeal that need be feared.

Now, remember that your dentist may employ a paralyzant anæsthetic deeply to "block" a nerve, rendering parts far removed from the area of injection quite numb or "dead", which you may think unnecessary. But he hasn't "bungled"—and is merely employing the mode of injection that the exigencies of the case called for.

* * *

MOUTH IRRITANTS.

INFORMATION is fairly widespread regarding that great class of tissue growths known as tumours or neoplasms. Of these, carcinoma or cancer is the most widely known and certainly the most common form to-day.

It is difficult to state definitely just what is meant by the word "tumour", but it can be said only that it is a tissue overgrowth which is independent of the laws governing the remainder of the body and which is due to cause unknown.

Tumours of the oral cavity present, in general, the same characteristics as those arising elsewhere. They are of two classes, benign or non-malignant, and malignant.

The cause of tumour being obscure, it appears at any rate to be actuated by chronic irritation.

Possibly the most frequent type of malignant tumour in the oral cavity is cancer of the tongue or mouth.

The tissues of the oral cavity are frequently subjected to minor injuries and are daily exposed, in some mouths, to irritations such as a jagged tooth, rough deposits, or ill-fitting restorations. Any one of these may act as an irritant to initiate an inflammatory process which, persisting, might result in a sore or lesion, perhaps not dangerous in itself, but from which may spring a tumour of either the benign or malignant type.

Now, it should be remembered that a non-malignant growth may become malignant, the change to malignancy possibly being so insidious and stealthy as to be non-apparent. This may be hastened by further irritation and because of the bacteria persisting in the oral cavity, but there is a greater tendency towards malignancy where mouth hygiene has been neglected.

Remember, that while sores of the tongue and mouth tissues should be early investigated, constituting, as they do, a menace to the health or even to the life of the individual, yet there is a danger of tampering with such lesions and their treatment should be undertaken only by those competent to do so.

* * *

THE TOOTH SOCKET.



YOU have but recently had a tooth extracted, and the tooth socket feels "so big" to your tongue that you wonder if it will ever fill up and heal over.

There is one thing in your favour here. Nature has made provision against oral injuries by ordaining that mouth tissue should heal rapidly, and to this end she has supplied a very large supply of blood to every part.

Following upon a normal extraction, the tooth socket fills with blood which quickly clots. This blood-clot serves to keep out infection and also to provide the foundation structure from which new tissue is formed to fill the socket.

At once Nature sets to work to build cartilage tissue amongst the fibres of the soft clot, which later is converted into bone by means of her little army of bone-builders, the osteoblasts.

Simultaneously little bone-breakers, known as osteoclasts, begin to tear down the elevation of bony tissue, the alveolar process, that had been raised up around the neck of the tooth for its support, it being no longer needed.

When this levelling process has been completed, the overlying soft gum tissue readily heals, leaving, in most cases, not even a scar.

Now it occasionally happens that, owing to an anæmic condition of the patient, or resulting from a too high concentration of the styptic drug in the anæsthetic solution, we have a condition known as "dry socket", in which there is little or no bleeding. This is highly undesirable, because of the danger of infective processes entering the body tissues through this portals.

Wherefore, should this condition arise, the dentist will attempt to encourage a freer hemorrhage by curettement, or failing this, to pack the socket with antiseptic gauze for a few days.



British Columbia—W. J. BRUCE, D.D.S., 404 Birks Bldg., Vancouver.

Alberta—JOHN W. CLAY, D.D.S., 914 Herald Bldg., Calgary.

Saskatchewan — C. W. PARKER, D.D.S., Imperial Bank Bldg., Regina.

Manitoba—W. W. WRIGHT, D.D.S., 767 Warsaw Ave., Winnipeg.

Maritime Provinces—J. STANLEY BAGNALL, D.D.S., 34 Larch Street, Halifax, N.S.

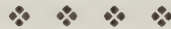
Ontario—LIEUT. COL. W. G. THOMPSON, 46 Sun Life Bldg., Hamilton.

STANLEY G. McCAUGHEY, D.D.S., 384 McLaren St., Ottawa.

Quebec—M. L. DONIGAN, D.D.S., 127 Stanley St., Montreal.

PAUL GEOFFRION, D.D.S., 308 Sherbrooke Street, Montreal.

Provincial Editors will appreciate receiving from all local societies copies of papers, society proceedings or personal notes, for publication.



QUEBEC.

MONTREAL DENTAL CLUB.

FEBRUARY 3rd, 4th and 5th, were the dates of the Montreal Dental Club's winter outing. About twenty members made the trip to the St. Margaret's Golf and Country Club, where a most enjoyable week-end was had by all. Skiing was the main sport and everyone took part, with the result that many spills occurred. A hockey tournament was also held and the team captained by Dr. A. L. Walsh, and composed of Drs. W. Watson, R. Edmison, J. S. Dohan, J. Wathem and D. P. Mowry, won the final game and the championship, although there were many rumours of the referee being bribed. A bridge tournament which was held on Saturday night, was won by Dr. R. Edimison. The return journey was made on Sunday evening and everyone agreed they had had a wonderful time.

The recent list of appointments made by McGill University in the Dental Faculty, contained the following names:—

Dr. W. G. Leahy, appointed lecturer in operative dentistry.

Dr. W. C. Bushell, lecturer in crown and bridge work.

Dr. I. K. Lowry, lecturer in prosthetic dentistry.

Dr. G. Franklin, lecturer in orthodontia.

Dr. M. L. Donigan, demonstrator in orthodontia.

The annual meeting of the Montreal Dental Club will be

held on Monday, March the 26th, at which the election of officers will take place.

The plans for the Thornton Testimonial Banquet are progressing very favourably. Dr. Wm. Rice, Dean of Tuft's College Dental School, Boston, and Dr. J. Lowe Young, of New York, have already signified their intention of attending. Any further information regarding the banquet, may be had from Dr. A. L. Walsh, care of McGill University.

* * *

A cordial invitation is extended to all Canadian dentists to hear Mr. G. Supplee, who will be in Montreal on April 26th under the auspices of the Montreal Study Club of Dental Technicians.

Mr. Supplee will address the dentists at 2.30 on the afternoon of April 26th in the Convention Hall of the Mount Royal Hotel. His subject will be, "Practical Suggestions in Impression Taking for Full and Partial Dentures."

M. L. D.

* * *

ONTARIO.

TORONTO DENTAL ASSISTANTS' ASSOCIATION.

INE years ago the Royal College of Dental Surgeons of Ontario established a Training School for Dental Nurses, awarding a diploma to those who successfully completed the course. These graduates formed an Alumnæ Association and have been carrying on regular meetings for some years. The need was felt for another association which would include not only the graduate dental nurse but also dental assistants who had given a year or more of satisfactory service in a dental office or clinic. An organization meeting was called in June, 1927, by Miss Gertrude Whitehead, when there was formed the Toronto Dental Assistants' Association.

Meetings have been held on the first Monday of each month in Willard Hall, the use of which has been extended gratuitously to the association.

OFFICERS.

President: Alta Aitken, D.N.

Vice-President: E. Hogan.

Treasurer: Jean M. Laing, D.N.

Corresponding Secretary: Kathleen James, D.N.

Recording Secretary: Evelyn White, D.N.

Convener, Social Committee: Anna Lindsay, D.N.
Convener, Sick Committee: Marion Edwards.
Convener, Convention Committee: Nellie Tuck.
Publicity Agent: Edith W. Brown, D.N.

THE WORK OF THE YEAR.

Following the October meeting a successful "Hard Times" party was held, that the members might become better acquainted. When the association met in November, Mr. B. Whitehead gave an interesting and helpful talk and demonstration on "The Care of the Handpiece." The December meetings were devoted to plans and arrangements for distributing Christmas cheer, which received generous support from the members. In January an informal bridge and euchre was held at the I.O.O.F. Temple on College St. Refreshments were served at the close and dainty prizes presented. In February the association was fortunate in securing Dr. F. J. Conboy, Director of Dental Services for Ontario, as their speaker. He discussed the subject of "The Psychology of the Handling of Patients" in a broad and interesting manner, and those present derived much benefit and enjoyment.

A constitution has been drawn and a copy sent to each member. The fees are \$1.00 for initiation with an annual fee of \$2.00. The Toronto Dental Assistants' Association desires the co-operation of the members of the profession in Toronto and surrounding district, that their office assistants may be encouraged to join this association. During the coming months clinics and lectures are being planned with a view to developing the members of the association and enabling them to render better service, as well as deriving the benefit of social intercourse.

* * *

EASTERN ONTARIO.



At the March meeting of the Ottawa Dental Society Dr. D. C. W. Coupland gave a paper illuminated with slides on Exodontia, some difficulties and their solutions, with particular reference to post operative pain and its care.

His slides, taken from his own Radiograms, were very numerous and excellent. The paper was discussed by Drs. Gauthier, W. A. Armstrong and Cosgrove.

The election of officers for the ensuing year resulted in the following:—President, Dr. Leon Letellier; Vice-President,

Dr. I. W. Hamilton; Sec.-Treas., Dr. Archie Grace. Executive Committee: Drs. C. H. Juvet, T. Provost, S. W. Sheridan, Balmer Beattie, Geo. Hutchison, Chas. Rodgers, W. A. Armstrong, H. W. Pritchard and S. S. Davidson. Auditors: Drs. W. Flora and J. S. Dormer.

A special dinner meeting of the society was held on Friday, March 23rd, to hear Mr. Mussel deliver an address on "Visual Education in Dentistry."

* * *

The Eastern Ontario Dental Association meeting will be held in Ottawa near the last of September. The programme committee have things under way and we are looking for a splendid attendance. Suggestions and requests will be welcomed by the secretary, Dr. D. C. W. Coupland, 142 Laurier avenue west, Ottawa.

S. G. McC.

Credo



BELIEVE that, on the whole, the world isn't so bad—and is growing better.

I believe that nothing worth while is wasted—that everything was, is and will be.

I believe that to be good is well—to do good is better—to "make good" is best.

I believe that we are helped in attaining our ideals by knowing that our friends believe in us and expect great things of us.

I believe that environment, which is adamant before weakness, is fluid before strength, purpose and work.

I believe that there is no more precious treasure for to-day nor higher heritage for the future, than a friend.

I believe that laughter means red blood and long life.

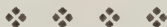
I believe in the divinity of all, as well as the divinity of the one.

I believe in the hearty handshake, in hospitality, comradeship, friendship and love.

—The Personality Imp.

Officers of Canadian Dental Organizations

*Oral Health will be pleased to Receive Additions or Corrections that
Directory of Names May be Kept as Accurate as Possible.*



CANADIAN DENTAL ASSOCIATION

President: Dr. John Clay, Calgary, Alta.
Secretary: Dr. J. Stanley Bagnall, 34 Larch St., Halifax N.S.

DOMINION DENTAL COUNCIL OF CANADA

President: Dr. George Kerr Thomson, Halifax, N.S.
Secretary: Dr. W. D. Cowan, Regina, Sask.

CANADIAN DENTAL HYGIENE COUNCIL

President: Hon. S. C. Mewburn, K.C., Hamilton.
Secretary: Dr. E. A. Grant, Toronto.

CANADIAN DENTAL RESEARCH FOUNDATION

President: Dr. R. Gordon McLean, Toronto.
Secretary: Dr. E. A. Grant, Toronto.

PROVINCIAL AND LOCAL DENTAL ASSOCIATIONS.

THE DENTAL SOCIETY OF WESTERN CANADA

President: Dr. E. Doyle, Calgary, Alberta.
Secretary: Dr. P. W. Winthrop, Saskatoon, Sask.

BRITISH COLUMBIA

British Columbia Dental Association.

Pres.: Dr. F. T. Coghlan, Vancouver.
Sec.: Dr. Fraser Allen, Vancouver.

Vancouver Dental Society.

Pres.: Dr. J. Frank Hill.
Sec.-Treas.: Dr. H. M. Cline.

Victoria Dental Society.

Pres.: Dr. J. C. Foote.
Sec.: Dr. S. Youlden.

ALBERTA

Alberta Dental Association.

Pres.: Dr. H. L. Coursier, Wainwright.
Vice Pres.: Dr. M. L. Moore.
Sec. & Reg.: Dr. A. B. Mason, Edmonton

Calgary Dental Society.

Pres.: Dr. A. C. Steeves.
Sec.-Treas.: Dr. B. J. Charles.

Edmonton Dental Society.

Pres.: Dr. Robt. Decker.
Vice Pres.: Dr. Alex. Gemeroy.
Sec.: Dr. W. Scott Hamilton.

Lethbridge Dental Association.

Pres.: Dr. J. S. Stewart.
Sec.-Treas.: Dr. M. J. Gibson.

SASKATCHEWAN

Saskatchewan Dental Association.

Pres.: Dr. A. J. Brett, Regina, Sask.
Sec.: Dr. Irwin Robb, Regina, Sask.

Saskatoon Dental Society

Pres.: Dr. Lee Steeves.
Sec.-Treas.: Dr. Robt. A. Newlove.

Moose Jaw Dental Society.

Pres.: Dr. R. H. McDougall.
Sec.-Treas.: Dr. E. J. Hill.

Regina Dental Society.

Pres.: Dr. W. J. Mooney.
Sec.-Treas.: Dr. W. M. Blair.

MANITOBA

Manitoba Dental Association.

Pres.: Dr. H. J. Merkeley, Winnipeg
Sec.: Dr. J. F. Morrison, Winnipeg.

Winnipeg Dental Society.

Pres.: Dr. B. E. Brownlee.
Sec.-Treas.: Dr. Ben. Toombs.

ONTARIO

Academy of Dentistry, Hamilton.

Pres.: Dr. J. N. Stewart.
Sec.: Dr. L. A. Kilburn.

Academy of Dentistry, Toronto.

Pres.: Dr. S. Woollatt.
Sec.: Dr. A. Hord.

Bay of Quinte Dental Society.

Pres.: Dr. F. T. Knight, Picton.
Sec.: Dr. C. E. Wright, Picton.

Brant Dental Society.

Pres.: Dr. W. Hart, Brantford.
Sec.: Dr. L. E. Riddolls, Brantford.

Cornwall Dental Association.

Pres.: Dr. J. V. Lally.
Sec.-Treas.: Dr. H. W. Weagant

Eastern Ontario Dental Society.

Pres.: Dr. S. G. McGaughey, Ottawa
Sec.: Dr. D. C. W. Coupland, Ottawa

Elgin Dental Association.

Pres.: Dr. W. J. Riseborough, S. Thomas
Sec.: Dr. G. T. Mitton, St. Thomas.

Essex County Dental Association.

Pres.: Dr. A. Johnston, Windsor.
Sec.: Dr. O. C. Baker, Windsor.

Grey County Dental Society.

Pres.: Dr. C. Marshall, Owen Sound.
Sec.: Dr. J. W. Tackaberry,
Owen Sound.

Huron County Dental Society.

Pres.: Dr. G. F. Roulston, Exeter.
Sec.: Dr. F. J. Bechely, Seaforth.

Kingston Dental Association.

Pres.: Dr. A. W. Winnett.
Sec.: Dr. T. H. Renton.

ORAL HEALTH for April, 1928

PROVINCIAL AND LOCAL DENTAL ASSOCIATIONS—Continued.

Lambton County Dental Society

Pres.: Dr. W. A. Hartley, Sarnia.
Sec.: Dr. E. A. Storey, Sarnia.

London Dental Society.

Pres.: Dr. J. F. Giffen.
Sec.: Dr. S. R. Moore.

Niagara Falls Dental Society.

Pres.: Dr. L. C. Jones.
Sec.: Dr. C. A. Tanton.

North Bay Dental Society.

Pres.: Dr. B. F. Nott.
Sec.-Treas.: Dr. L. H. McCool.

North Temiskaming Dental Association.

Pres.: Dr. G. Mitchell, Timmins.
Sec.: Dr. S. L. Honey, Timmins.

North Waterloo Co. Dental Association

Sec.-Tr.: Dr. J. A. Spellman, Kitchener

Ontario Dental Association.

Pres.: Dr. A. E. Webster, Toronto.
Sec.: Dr. F. J. Conboy, Toronto.

Ontario and Durham Dental Society.

Pres.: Dr. F. L. Henry, Oshawa.
Sec.: Dr. B. B. Beaton, Whitby.

Orthodontic Club of Toronto.

Pres.: Dr. H. G. Bean.
Sec.-Treas.: Dr. S. S. Crouch.

Ottawa Dental Society.

Pres.: Dr. Lorne E. MacLachlan.
Sec.: Dr. Ira W. Hamilton.

Peterborough Dental Society.

Pres.: Dr. Harold Long.
Sec.: Dr. N. W. Hayes.

St. Catharines and District Dental Ass'n.

Pres.: Dr. C. R. Davis, St. Catharines.
Sec.: Dr. J. M. Shultis, St. Catharines.

Sault Ste. Marie Dental Society.

Pres.: Dr. H. F. Goodfellow.
Sec.-Treas.: Dr. R. E. Stone.

Simcoe County Dental Society.

Pres.: Dr. W. M. Seymour, Orillia.
Sec.: J. B. King, Penetang.

South Temiskaming Dental Association.

Pres.: W. J. Fuller, New Liskeard.
Sec.-Trs.: W. R. Jackson, Englehart.

Stratford Dental Society.

Pres.: Dr. D. R. Nethercott, Stratford.
Sec.:

Sudbury Dental Society.

Pres.: Dr. J. C. Fraser, Sudbury.
Sec.: Dr. J. S. Miller, Sudbury.

Thunder Bay Dental Association.

Pres.: W. D. Ramore, Port Arthur.
Sec.: Dr. M. P. Bengier, Port Arthur.

Wellington County Dental Society.

Sec.: Dr. E. S. Burrows, Guelph.

QUEBEC

Montreal Dental Club.

Pres.: Dr. D. P. Mowry, Montreal.
Sec.: Dr. A. D. Crowe, Montreal.

Mount Royal Dental Society.

Pres.: Dr. I. N. Pesner, Montreal.
Sec.: Dr. L. S. Eidinger, Montreal.

Quebec Dental Association.

Pres.: Dr. E. Charron, Montreal, Que.
Sec.: Dr. Denis Forest, Montreal, Que.

Société Dentaire de Montreal.

Pres.: Dr. J. A. Pinault.
Sec.: Dr. Paul Geoffrion.

NEW BRUNSWICK

Moncton Dental Society.

Pres.: Dr. J. A. Le Blanc.
Sec.: Dr. A. H. Le Blanc.

New Brunswick Dental Association.

Pres.: Dr. J. Kerr Higgins, St. John.
Sec.: Dr. F. A. Godsoe, St. John, N.B.

St. John Dental Society.

Pres.: Dr. J. E. Edgcombe.
Sec.: Dr. Frank Poyaner.

NOVA SCOTIA

Cape Breton Dental Society

Pres.: Dr. J. P. Parker, Sydney.
Sec.: Dr. J. T. Lebbetter, Sydney.

Dental Association of Nova Scotia.

Pres.: Dr. T. Melanson, Yarmouth.
Sec.: Dr. G. R. Hennigar, Halifax.

Halifax Dental Society.

Pres.: Dr. F. W. Johnson.
Sec.-Treas.: Dr. G. A. Chudleigh.

Western Counties Dental Association

Pres.: Dr. H. O. Harding, Yarmouth.
Sec.: Dr. V. G. Turnbull, Digby.

PRINCE EDWARD ISLAND

Prince Edward Island Dental Assoc'n.

Pres.: Dr. T. E. E. Robins, Charlottetown
Sec.-Treas.-Reg'r: Dr. J. S. Bagnall
Charlottetown

REGISTRARS OF PROVINCIAL DENTAL BOARDS.

Prince Edward Island.

Dr. J. S. Bagnall, Sec.-Treas., P. E.
Island Dental Association, Char-
lottetown, P.E.I.

Nova Scotia.

Dr. A. W. Faulkner, Registrar, Nova
Scotia Dental Board, 69 Gottingen
St., Halifax, Nova Scotia.

New Brunswick.

Dr. Frank A. Godsoe, Registrar,
Council of Dental Surgeons, St.
John, N.B.

Newfoundland.

Dr. W. T. Rea, Sec.-Registrar, New-
foundland Dental Board, St.
Johns, Nfld.

Quebec.

Dr. D. Forest, Registrar, Quebec
Dental Board, 187 de la Roche St.
Montreal, Quebec

Ontario.

Dr. W. E. Willmott, Sec.-Treas.,
Royal College of Dental Surgeons
of Ontario, 211 Huron St., Toronto.

Manitoba.

Dr. W. W. Wright, Registrar, Mani-
toba Dental Association, 767
Warsaw Ave., Winnipeg, Man.

Saskatchewan.

Dr. L. J. D. Fasken, Registrar, Sas-
katchewan College of Dental Sur-
geons, Regina, Saskatchewan.

Alberta.

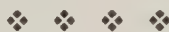
Dr. Leslie McIntyre, Registrar, Al-
berta Dental Association, Edmon-
ton, Alberta.

British Columbia.

Dr. W. J. Lea, Registrar, College of
Dental Surgeons of B. C., Van-
couver, B.C.



This Department is Edited by
C. A. KENNEDY, D.D.S.,
86 Bloor St. West, Toronto.

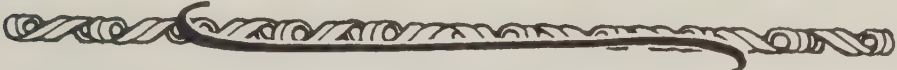


COLOURED ENAMELS.—These give beautiful effects, and offer to the dentist of taste a choice of colour schemes in his equipment. They are very popular.

TO PREVENT THE CLOUDING OF MOUTH MIRRORS.—Smear a thin layer of ordinary soap—soft but moist—over the surface of the mirror; then polish with a dry cloth. However much the mirror may be breathed on, the surface will remain bright and clear.—*British Journal of Dental Science*.

TOOTHBRUSHES.—The present method of putting up and selling the toothbrush is not only unsatisfactory, but disgusting. One need only call on a chemist to discover this. The customer asks for a toothbrush; he is shown a number and allowed to take his choice. Brush after brush is examined. the thumb is rubbed along the bristles to determine their degree of stiffness; one is chosen, and the rest, thumbed and unthumbed, are dumped back. The process is repeated by the next customer, and still by others, so that the toothbrush we buy may have been handled and contaminated by many. And is it not possible that one of these persons may have been tainted with syphilis or tuberculosis or some other contagious disease? Imagine further disgusting possibilities! The brush may have been handled and contaminated by factory hands and shop assistants as well as others; it may have been thumbed by a person fresh from the lavatory, with unwashed hands, or a boy after handling worms required for fishing bait! The list could easily be extended. Take the case of a lady, accompanied by her family, who asked to be shown some toothbrushes, as the children each required a new toothbrush before returning to school. Not only did all the children well finger a number of brushes, but one of the boys seized a favourable opportunity to try a brush against his teeth, and then dumped it quickly back!—F. PADGETT, L.D.S., in *British Dental Journal*.

Oral Health



Vol. 18

TORONTO, APRIL, 1928

No. 4

EDITOR:

WALLACE SECCOMBE, D.D.S., F.A.C.D., Toronto, Ont.

CONTRIBUTING EDITORS:

C. N. JOHNSON, M.A., D.D.S., F.A.C.D., Chicago.

W. E. CUMMER, D.D.S., F.A.C.D., Toronto.

Entered as Second-Class Matter at the Post Office Department.
Ottawa.

Subscription Price, Canada and United States, two dollars per annum; elsewhere three dollars. Single Copies 25c. Free distribution to all members of the Dental Profession practising within the Dominion of Canada and Newfoundland.

Original Communications, Book Reviews, Exchanges, Society Reports, Personal Items and other Correspondence should be addressed to the Editor Oral Health, 102 Wells Hill Avenue, Toronto, 10, Canada.

Subscriptions and all business Communications should be addressed to The Publishers, Oral Health, Royal Bank Building, 269 College St., Toronto, 2, Can.

EDITORIAL

The Canadian Dental Association

N this issue we publish an official statement from Dr. John W. Clay, President of the Canadian Dental Association, regarding the import and significance of the proposed changes in the organization of the Canadian Dental Association, as embodied in the new by-laws and constitution of that association. These changes, in a word, establish a Board of Delegates to be elected by all of the provinces of Canada, and so organized as to be able to speak with the united strength and authority of the dental profession on all questions affecting the progress and general welfare of Canadian dentistry. Unfortunately, the name of the Dominion Dental Council has been injected into the discussion of the changes in the organization of the Canadian Dental Association. The Dominion Dental Council is a

voluntary body composed of delegates from seven of the official provincial dental boards of Canada. All of the Canadian provinces do not, at the present time, choose to appoint delegates to the Council and, consequently, it is impossible to compare the work of the Council with that of a national body, such as the Canadian Dental Association, which is composed of delegates from all of the provinces of the Dominion. However, aside entirely from the actual number of provinces represented by delegates, the work of each body is such as to preclude their fusion into one organization. The one has to do with educational standards, curricula, licensure and ethical practice, while the other is primarily concerned with the organization of graduates for the scientific discussion of methods and conditions of practice, and the maintenance of a national organization standing ready to speak for the dentists of Canada, as occasion may arise. This is no time in the development of organized Dentistry in Canada to indulge in impracticable or irrelevant discussions concerning the Canadian Dental Association. The dental profession needs a strong, virile national dental association in this Dominion, and those having this important task in hand should be given the loyal and undivided support of every member of the profession.

Saskatchewan Mouth Health Campaign



THE Saskatchewan Mouth Health Campaign, which was carried on by the Canadian Dental Hygiene Council, from February 20th to March 26th, 1928, was an entire success.

The Minister of Health is reported to have said that the Campaign was the most successful public health campaign ever held in the Province of Saskatchewan.

It is to be hoped that one of the immediate results will be the appointment of a Provincial Director of Dental Services in the Department of Health. Such an appointment was forecasted by Dr. Seymour, Deputy Minister of Health, in a statement made by him, and a Committee, composed of Drs. W. D. Cowan, L. T. D. Fasken, A. J. Brett and W. D. Mooney, was formed to bring the matter officially before the Honourable, the Minister of Health, Doctor Uhrich.

Complete report of the Campaign will appear in the May issue of ORAL HEALTH.

“LIFE is a struggle, but not a warfare;
it is a day's labour, but labour on
God's earth, under the sun and stars with
other labourers, where we may think and
sing and rejoice as we work.”

—*John Burroughs.*



MR. WILLIAM MULLISS,
Editor, The Hamilton Spectator, Hamilton, Ontario.

ORAL HEALTH

*A JOURNAL THAT STANDS FOR THE "OUNCE OF
PREVENTION AS WELL AS THE POUND OF CURE"*



Vol. 18

TORONTO, MAY, 1928

No. 5

Focal Infection*

CHARLES H. M. WILLIAMS, D.D.S., RESEARCH ASSIST-
ANT, FACULTY OF DENTISTRY, UNIVERSITY OF
TORONTO.



R. Chairman and gentlemen: I feel it an honour and a privilege to present before you a paper on this subject of such great present importance to the profession. Undoubtedly it will be the avenue of another great scientific advance in dental knowledge and practice.

Focal infection and its results have been observed all through the history of Medicine and references are found as far back as 600 B.C. But the subject has received comparatively slight attention, considering its great personal and national importance, until quite recently. I speak here more especially as focal infection relates to dentistry rather than to medicine. For many years dentistry was almost solely occupied with the mechanical treatment of mouth defects; which course it was forced to adopt due to the early break with the medical profession. However, in the spirit of all good pioneers and with the realization that mouth treatment is to become one of the most important medical specialties, the profession has rapidly come on to the consideration of a new power and responsibility in relation to the general systemic condition of the patient. As evidenced by the journals, focal infection is occupying a large and increasing share of the attention of the dental profession. But the subject is extremely complex and definite data of positive significance are slow to accumulate. There is little definite information available yet as to the type and degree of systemic effect that may result from any certain

*Read before North Waterloo Dental Society, 5th April, 1928.

type or size of focus; and many other points of great importance are still wrapped with the veil of indefiniteness. And it will only be by the earnest and co-operative efforts of the dental and medical professions, that the public and the professions themselves may best be served by a furtherance of the knowledge of this subject. As sufficient proof has already been shown to indicate that any focus of infection must be regarded as a hazard and probable handicap to the general health of the bearer, it is evident that an increasing knowledge of internal medicine and related subjects on the part of the dental profession will be necessary to intelligently consider the prevention and treatment of focal infection as it relates to the systemic condition. Since it is thus within the power of the dental profession to render an immense benefit both to mankind and to itself, it will again undoubtedly rise to the occasion.

It was with this necessity of progress in mind, both as regards the subject under consideration to-night, and the other branches of dentistry, that a new research department has been created in the Faculty of Dentistry at the University of Toronto. I have been asked to outline for you the status and work of this group, of which the speaker is a member.

The Provincial Government through the University now makes a yearly grant sufficient to allow for the appointment of five full-time research workers receiving a subsistence of \$1,000 a year. There are also three dental internes in hospitals doing half-time research, two of these having been awarded Fellowships of the Ontario Dental Association and Ash-Temple, each having a value of \$250 a year. These positions are open to all graduates in good standing of approved dental colleges. At present the group is composed almost entirely of young graduates of our own college and nearly every department of dentistry is being investigated in some way. A short review of the speaker's activities during this session may give the insight into this department that it is desired may become general in the hope that it may stimulate a working co-operation between it and the practitioners of the province.

As the speaker's chief interest lay in periodontitis and its relation to systemic effects, the first four months of this session were spent half-time in the Pathology Laboratory at Western Hospital, in the study of histology, pathology and bacteriology,

and the remaining half in the clinical study of periodontia. Since Christmas the time has been almost fully occupied in the development of a system designed to obtain the most accurate information relating to the systemic conditions before and after treatment of patients presenting with a definite oral infection of some type, and preferably those who exhibit at the same time some of the systemic effects commonly attributed to focal infection. Later work may attempt to show the comparative systemic effects of periodontal and periapical lesions. This development has, of necessity, been slow, but it is felt that conscientious and sustained work, according to the present programme, should yield some valuable additions to the present knowledge.

Before the institution of dental treatment, a full family and personal history is recorded, medical and oral examinations made (using the x-ray in every case) and laboratory observations of the blood and urine are completed. During the dental treatment, no other treatment is allowed and the reactions of the variable factors of the body such as the pulse, temperature, respiration, blood pressure, blood cell count, hemoglobin, blood-calcium and urine are observed at regular and definite intervals. These observations are to be continued one month after the completion of dental treatment. The application of this method has been of such short duration that nothing may yet be said about the results. But later in this paper three of the earliest cases accepted will be outlined.

DEFINITION AND CLASSIFICATION.

A focus of infection is defined as a circumscribed area of tissue containing micro-organisms.

Foci of infection are classed as primary and secondary, and "focal infection" requires for the fulfilment of its meaning a primary or causative focus, and a resultant lesion in an adjoining or distant part of the body, which is the secondary focus. It is conceivable that there might be a primary focus without a resulting secondary focus, in which case the condition would not be focal infection; or that, a secondary focus might become sufficiently well established that it would act as a causative factor in the establishment of other foci. It becomes, then, in fact and in name, a primary focus.

LOCATION OF FOCI.

The primary focus may occur anywhere in the body, but it is usually found in tissues communicating with cutaneous or

mucous surfaces, in the majority of cases in the head, and most especially about the teeth.

The secondary focus may occur contiguous to the primary lesion or in some distant part of the body whence the infectious agents have been transported by the blood or lymph streams. The localization of the secondary focus is a matter that occasions considerable difference of opinion. Rosenow claims to have demonstrated that certain organisms may develop certain inherent qualities which cause them to attack by preference certain organs or tissues. While Holman, of the University of Toronto, supports the theory that certain areas of the body, due to their histologic structure and anatomic position, are peculiarly susceptible to infection carried by the blood stream, and that any tissue or organ whose resistance is lowered is liable to infection by blood-carried organisms. He says, "Fatigue of function lowers the resistance to infection in many ways and thus any organ under continual stress becomes the site of an infection if there is an infected focus delivering bacteria into the blood stream." This may be applied to explain the formation of secondary foci about formerly sterile non-vital teeth with their low resistance. It also bears out admirably the latest teaching in periodontology which shows overfunction and overstress of the periodontium, and the consequent lowering of the vitality, as the main causative factors prior to infection as a secondary effect and consideration.

INCIDENCE OF INFECTED FOCI AND FOCAL INFECTION.

The incidence of foci of infection in the mouth is extremely high as shown by Billings, who reported on 498 cases of chronic anthritis. Three hundred and thirty-two of these cases had a complete oral x-ray examination which disclosed an average of nearly four periapical areas per patient, while 76% of the whole group showed a well-defined periodontitis, and in many cases a well advanced suppurative condition. Dr. Henry Ulrich examined 1,000 non-vital teeth and found well defined abscesses about the apices of over 70%.

This incidence was observed among adults and would not be so high among children, where the tonsils, adenoids and middle ear infections are more commonly the primary foci. These infections among children are more often exhibited in acute than in chronic forms. But it is felt that the high inci-

dence of infection about the deciduous teeth is not receiving the same keen attention that is accorded infections of equal intensity among adults, and that, although the body resistance is higher and the desire to keep the deciduous teeth in place is great, the probability of serious and lasting systemic effects of oral foci of infection exists and is a very important factor in the case management of children's dentistry.

SIGNIFICANCE OF ORAL INFECTION.

This high incidence of infection is more remarkable if the teeth and their investing tissues are regarded in their true light as integral parts of the alimentary system and not as entities within themselves. The mouth must be regarded in the same manner as any other part of one of the great systems of the body. Any disturbance of this part causes a reaction on all inter-related parts and finally on the whole body. As such a part it deserves the same care in prevention of disease, and in its treatment when disease is established, as is accorded the tonsils, appendix, gall-bladder and other of the more common sites of foci of the body. Box has lately pointed out the very striking similarity of anatomic position and of the pathologic factors favouring bacterial absorption, between the periodontal pocket and the crypt of the tonsil. And yet patients who would seek immediate treatment for infected tonsils will tolerate periodontitis with fine unconcern. Of course only a small percentage of those harbouring oral or other low-grade infections develop systemic disease that may be definitely known as the result of the infection. This variance between the number of known primary foci and the number of known deleterious systemic results, is explained by the power of the natural defences of the body to combat infection, and by the difficulty of linking the cause and the result. But these foci nevertheless constitute a constant menace liable to become actively dangerous with any weakening of the natural defences such as might result from exposure to cold, mental or physical exhaustion or traumatic injury. The common occurrence of anthritis, pneumonia, appendicitis, tonsillitis, sciatica, etc., immediately following the lowering of the vitality from one of the above causes, indicates the former presence of organisms awaiting this opportunity to exercise their destructive powers. Holman has described the action of those opposing forces as "a continuous contest between bacteria of varying virulence and the altering resistance in the tissues of the human body."

MANIFESTATIONS OF FOCAL INFECTIONS.

The clinical systemic manifestations of focal infection arising from any primary focus may be many and are inconstant of location and form. Although acute diseases are less often the result of focal infection than chronic diseases, some acute types have been shown to bear a direct relationship. Such diseases are—those affecting the muscle, valves and surrounding sac of the heart. Acute appendicitis has often been noted by the French as a result of infection in the nose, throat and mouth and this has been verified by Cannon, Namba, Adrian and others. Cholecystitis or gall bladder inflammation is undoubtedly sometimes due to blood transported organisms from some primary focus.

Thyroid enlargement is thought to have a close association with the presence of foci of infection about the teeth, tonsils and sinuses.

Eye diseases apparently have a close relationship to focal infection and the optical profession are now turning to dentistry for co-operation in this regard. The speaker has known the inspiring joy of being the medium of treatment in an apparent case of failing eyesight which was referred by an optician. The case will be reported later in this paper.

Chronic diseases resultant of focal infection are more common and extremely variable in their clinical manifestations. Usually the onset of the disease is slow, not easy of observation, and progresses over a lengthy period without detection. Such changes when occurring in or about the heart, alimentary or urinary tract may cause a slow and general upset of the whole metabolism. It is this cause which often results in loss of vigour, muscular weakness, loss of appetite, malaise and mental depression. More specific forms of chronic disease resulting from focal infection are those affecting the tonsils, joints, sinuses, eyes, alimentary tract and heart.

Less common forms are those affecting the nervous urogenital and respiratory systems. The manifestation of focal infection in many rare and obscure forms has been observed.

DIAGNOSIS.

Definite diagnosis of focal infection is as yet very difficult and requires the keen attention and co-operation of the dentist and physician. To designate any focus as the definite causal factor in a disease is as yet almost beyond the power of present

knowledge. Many laboratory tests for the detection of focal infection have been devised with little success and apparently the most useful diagnostic aids are the x-ray and the family and personal history. By these means a coincidence of time of appearance and length of duration regarding the mouth lesion and the systemic effects may be exposed. Or the history may reveal a family and personal tendency toward being subject to one of the diseases in which even suspicious foci are not safely tolerated. Such diseases are diabetes, heart changes, arthritis, anæmia, syphilis, eye diseases and tuberculosis.

Edentulous areas of the mouth may not be safely regarded as being free of the possibility of containing foci of infection.

The Mayo Clinic reports the presence of residual infected areas in 59% of all edentulous mouths examined as routine during two years. Dr. R. M. Box reports such areas present in 50 to 60% of edentulous cases in his x-ray observations.

TREATMENT.

In the treatment of focal infection, prevention is an important principle, and the early institution and continued performance of mouth care on the part of the dentist and the patient may be confidently expected to reduce possible disease and suffering. But when the presence of focal infection is established, removal of the cause is necessary. This sometimes requires the removal, when possible, of more than one established focus; and lack of improvement in the systemic condition is often due to failure to remove all foci.

Mouth treatment has the two-fold purpose of saving the teeth and of restoring and preserving the local and general health. But whatever the form of treatment nothing short of extreme care in regard to the future health of the patient may be considered satisfactory service. With the knowledge that is quickly accumulating regarding the close relationship of oral conditions and systemic effects, the dentist has a great responsibility to consider in deciding the form of treatment.

SOME RESULTS OF TREATMENT.

The report of some cases will possibly illustrate most clearly the possibilities of focal infection and its treatment. D. Henry Cotton of New Jersey State Hospital paid special attention to the treatment of focal infection among the insane, making the removal of all foci of infection an essential part of the treat-

ment. The result was that whereas formerly only 43% of those admitted had been released as cured and the rest became chronic, cures were produced in 87% of the cases with the new treatment.

The following cases which have been under the treatment and observation of the speaker, while not accurately enough observed to be of good scientific value, undoubtedly show a great benefit resulting from the removal of oral infection.

CASE 1.

The co-operation that the other professions expect of dentistry is well exhibited here inasmuch as this patient was referred both by his medical man and his optician to the college clinic.

Mr. H. is a man of 35 years of age, a carpenter by trade, and a world's record holder in target-shooting. He has a fine physique and had enjoyed good general health until nine weeks previous to presentation at the dental clinic when he had suffered an attack of pneumonia. When presented at the clinic he was five weeks convalescent and had not made sufficient progress to satisfy his physician who believed marked oral infection might be a factor. During the last few weeks a painful swelling about the size of a pea in the lower right eyelid appeared whenever the eyes were strained in shooting practice or when exposed to the wind. Coincident with the appearance of this swelling was a mistiness of the right eye which was affecting the sight. An optician who examined the eyes pronounced sight as 25% above normal and suggested the possible relationship of mouth infection to the eye lesion.

The family history was negative except for the common occurrence of neuritis.

Mouth examination showed an advanced chronic suppurative periodontitis affecting all the teeth to varying degrees.

The usual clinical and laboratory tests mentioned before, were made and showed a small change from normal in the blood count and a decrease from normal in the hemoglobin. All the remaining upper teeth and one lower tooth, making 14 in all, were extracted in three sittings and the remaining lower teeth were given the usual periodontal treatment. In this connection it is not thought wise to extract too many teeth at one sitting in cases of this kind as too large a capillary area is opened for the absorption of the organisms present. The extraction of one or two teeth with an interval of several days

before the next sitting apparently inoculates the body and allows the formation of anti-bodies sufficient to immunize against the following and more extensive extractions. In this case the extractions were rushed at the patient's request and the patient had an attack of carbuncles a few days after, which it is thought were the result of a bacteriamia due to the sudden throwing of great quantities of infection into the blood stream.

The results of the treatment were most remarkable and pleasing. From the completion of the extractions, and during the periodontal treatment of the lowers, the patient improved markedly and rapidly in vigour and strength, the eye symptoms have not been evident once since then and all symptoms of intestinal disorder have disappeared. The blood changes have corresponded closely with the clinical manifestations and six weeks after the completion of the dental treatment, the blood was normal in every respect.

Mr. D. is an Englishman, 43 years of age, a tool maker by occupation.

He presented at the clinic on his physician's advice, with symptoms of headaches, dizziness, vomiting, loss of vigour, muscular weakness, pain and swelling in the left sublingual gland, and lumbar rheumatism. He also had been referred by his optician because of a complained mistiness before the eyes. All these symptoms had become increasingly noticeable during the last three years and had forced him to quit work three weeks previous to presentation.

The family and personal history had no apparent bearing on the present condition.

The oral examination revealed an advanced complex periodontitis about all the remaining teeth, except the lower anterior eight. A free flow of greyish white pus was obtained about all the teeth affected by means of a crownward manual massage of the investing tissues. X-ray examination showed marked loss of bone about all the teeth except the lower anterior eight. The alveolar bone in the bifurcations of all multi-rooted teeth was involved by the periodontitis and in some cases the tooth was free of bone.

The lower eight anterior teeth were given periodontal treatment and all the rest of the remaining teeth were extracted in four sittings.

Five days after the completion of the extractions and the institution of periodontal treatment, the patient reported cessa-

tion of the digestive troubles, headaches, muscular pains, dizziness, soreness of the left submaxillary gland and such a return of vigour that he was returning to work the next day. There was, however, no apparent improvement in the eye condition.

One month later the patient reported no recurrence of any of the above-mentioned symptoms and still no improvement in the eye condition. He had been constantly gaining in strength and vigour and had worked steadily during that time.

Mr. K. is a laborer, 47 years of age, who was referred to the clinic by his physician.

His chief complaints were abdominal pains, headaches, dizziness and loss of strength and vigour. The present illness dated back about eight months. During that time the above symptoms had steadily increased in degree until a month before presentation when he had been forced to quit work.

Six years previous to presentation the patient had had an operation for appendix and structure of the intestine and four years later had had dietary and medicinal treatment for ulcer of the intestine. It was feared that the present condition marked a recurrence of the intestinal ulcer. During the three weeks previous to presentation, dietary and tonic treatment had brought about but slight improvement.

A clinical and x-ray oral examination revealed a well advanced complex periodontitis involving all the remaining teeth, and also several periapical areas. All the remaining teeth were removed in four sittings. The patient reported an extremely acute attack following the first extraction, but had improved rapidly from that time on. One week after the completion of dental treatment the abdominal pains, headaches and dizziness had been absent for several days and the patient had regained sufficient vigour and strength to return to work.

The above cases have been observed only clinically and the conditions at presentation were very marked, both as regards systemic manifestations and evident oral infections. The results obtained, however, may be considered as being due solely to dental treatment and may thus be considered as indicators of the systemic effects of oral foci of infection and of the importance of their prevention and removal.

REMOVAL OF IODINE STAINS FROM GARMENTS.—Dampen the spots on the cloth, cover with dry carbonate of soda. Renew the soda until the spot is removed.

Constructive Thoughts on Practice Building*

J. N. STEWART, D.D.S., HAMILTON.



SINCE consenting to give you boys a talk on "Business" I have found myself at a loss to know what to say that will be of any real value to you. We have had such wonderful speakers at our Society meetings that it is extremely difficult to express anything that you do not already know. However, I have always contended that in reading a book or attending a lecture, if I could assimilate just one good idea that I could use in a practical way, I felt well repaid for my time and effort expended, so I am hoping that I may give you at least one helpful thought. I do not claim originality for any of the ideas that I am about to express, they are merely a few that I have used and proved to be well worth recommending.

I think you boys know me well enough to realize that my chief object, as a member of this Society, is to help in every way I can, both individually and collectively. I feel I am right in assuming that we all have much the same problems to meet each day and, to my mind, these problems are nothing but golden opportunities to test and prove our philosophy of life, and by a little careful analyzing I will endeavour to show how we can apply a principle to the afore-mentioned problems with perfect results. You know the most of us struggle along considering life a battle. It is not a battle, it is a game which cannot be played successfully without the knowledge of a principle or law, and that law is the good old Golden Rule, "Do unto others as you would have others do unto you," and also by realizing that, "As ye sow, so shall ye reap." Now these are the rules of this game we are all playing, and only in so far as we follow them can we hope for satisfactory results, namely—"Health, Wealth and Happiness." Thoughts expressed in word or action are seeds planted in fertile soil, and they have no choice but to produce for us a multiplication of their own kind. If you express hate, hate will be directed toward you. If you express distrust, people will distrust you. If you criticize, you will be criticized. If

* Read before the Hamilton Academy of Dentistry, 21st February, 1928.

you love, you will be loved. Now many have tired and failed to play this game of life by other rules. True, some unscrupulous, dishonest individuals do seem to prosper financially for a time, but, does that win the game from all points? No one can be healthy who is not happy, nor happy if they are not honest. The mere having of an abundance of money does not mean success. If so, the miser would be considered successful, but he is not. It is only by having the welfare of your fellow citizens at heart that you can win contentment, the confidence of the other fellow and our share of this world's goods.

We have spent, and continue to spend, a lot of time learning how to handle the various materials and instruments we use every day, but devote very little time, if any, to constructive thinking of how to handle ourselves as thinking individuals and how our mentalities harmonize with others. Let us analyze what happens on the first visit of a patient to our office. One of two things has sent them to us. They are either seeking us, owing to our reputation, or they are wanting merely a dentist and we happened to be convenient. They are ushered into our operating room and we meet for the first time, and let me stress right here that this first encounter or consultation is by far the most important engagement we will ever have with that individual. If they have been recommended, the mode of procedure is comparatively simple, if not, they will fall under the classification of the person who just wants a tooth filled or pulled, they are not interested in us as an individual at all. They view this matter of getting a filling, or a denture, in much the same light as stopping at the grocery store for a package of cornflakes, and, believe me, if we allow those fellows to leave our office with the feeling that they have bought a filling or denture, instead of a service, our selling ability is on a par with, and not above, that of the grocery clerk.

We make an examination and, during that operation, we think of service to patient, type of patient, fee, etc. The patient, in turn, with a wide open countenance, thinks, feels, sees, hears, tastes and smells, and, by the sum total of these over-active senses, he forms definite conclusions regarding our ability, our habits, cleanly or otherwise, whether we look honest and trustworthy.

Now comes the hardest and most important thing to do, as

it requires honesty of purpose, courage and selling ability to see that the patient receives the highest type of work they can afford and at a legitimate profit to ourselves. A patient cannot be happy in contracting for something that they know they cannot pay for. Neither can we do good work or be happy in doing the work unless we see a profitable return for our efforts. Both you and your patient will have to come to earth. Lay your cards on the table face up and you will be surprised to see how easy it is to come to some definite conclusion. That will be profitable to both parties. This interview should be of such a nature that there will be no possible chance of misunderstandings as the work progresses. We should never apologize for a fee, or try to create a feeling that we are not making a profit, it is a sign of weakness and creates distrust in the mind of the patient. It reminds me of a contractor who was continually complaining of losing money on each contract:—

He was building a house for a chap who grew tired of his wailings, and finally said—"Are you actually losing money on this contract?" The carpenter said—"Yes." He was then told that since he did not know how to figure a contract, he would advise him to get a job carrying the hod; he would know exactly what he was making at that.

Real people want you to make a profit on your work, and they lose respect for you if they think you do not.

In making a contract, remember this—the only thing you have to sell of any real value is the "You" within yourself, and you are a creator in your particular line, and as such have no competitors and you profit in exact proportion to your ability to market that which you create.

We should never permit ourselves to get on the competitive plane. It only leads to trying to undersell the other fellow, and starves out the high ideals that we should all have and cherish. If we ever expect to advance we must determine that each time we improve ourselves by taking special courses, etc., we intend to increase our fee for that particular class of work. This stimulates us to do better work and to be always looking for advanced ideas. I trust we can display as much intelligence as a music teacher in that line. If they go away for a special course they know enough to increase the price of their tuition, and rightly so. In music the 50 cent teacher does not depreciate the efforts or prices of the \$5 or \$10 teacher,

but rather glories in the fact that, if it is possible for one to receive \$10 per lesson, they can by proper application, at least approach that fee. We, in our profession, should view this matter in exactly the same way. The question now arises, what are the chief factors that determine a fee in Dentistry? To my mind, the thing that deserves the highest reward or fee is:—

1st—Good reputation, earned by honest, faithful service.

2nd—Good judgment, one's ability to decide what to do, and how to do it.

3rd—Ability to help the patient see the value of the work one proposes doing.

4th—Ability to *do* that which one agrees to do.

The chap fresh from college may have the ability to do that which he agrees to, fairly well. He may be able to sell his services to a good advantage, but it takes time, and a keen observation of the many experiences he has had, to develop good judgment. As for reputation, the new graduate is in the embryonic state.

The young fellows should thank God that this is so, for it clearly shows that as they establish a favourable reputation they can increase fees, cut down on working hours, and make more money. I want to state most emphatically that if you wish to build up a favourable reputation, your efforts must be fired by enthusiasm and controlled by the Golden Rule.

Faithful adherence to this same rule of dental Ethics will completely eliminate all such unethical practices as cutting prices and fee splitting, which I am sure we all consider contemptible. In closing, let me draw your attention to the remuneration musicians receive on the concert stage. It depends entirely upon their reputation, which has been created by their personality, enthusiasm and soul expression, coupled with perfect technique. The same general principle applies to our profession. We must see all these attributes in order to be successful.

A couple of weeks ago I attended a concert given by a Russian violinist; his name sounded like "Howsyour Whiskey." The hall was brilliantly lighted and the seats were half empty. The artist gave a wonderful concert so far as technique goes, but it certainly did not thrill one; there was no soul or enthusiasm, which is the only thing that creates that spontaneous response; in other words, he was lacking in the

qualifications that go to build a reputation. That accounted for the empty seats. Contrast this with a concert given by Paderewski in Massey Hall. His reputation filled that place to capacity. He entered with grace, poise and personality, and as he sat down the lights were dimmed, leaving the audience in a relaxed, comfortable and receptive atmosphere. Paderewski had no fear that anything could put him out of the picture. He was giving his audience more than technique, his enthusiasm, his very soul, was in that music, and it thrilled and satisfied even an amateur like myself, and the point I wish to make is this, boys, when we go back to our offices tomorrow let us not permit the talking, or display of materials or technique, to put us out of the picture. Let us learn to be enthusiastic in our work, as it is one of the greatest business building materials that God has given us to use.

Dentistry To-day and To-morrow



ENTISTRY, as practised by the majority of our profession, is limited to an endless effort to repair and replace, the accomplishment, compared to the ideal, namely, prevention, must be considered largely a failure.

In the light of our former standards, which seemed to accept the necessity for the partial or complete loss of dental organs, the service rendered has been a great blessing to humanity.

But, just as the measure of accomplishment of the internist in regard to a disease, such as typhoid, is found in the terms of his ability to prevent that disease, just so those engaged in the oral specialty of health service must be judged as to their efficiency, by their ability to prevent the disease of the oral caviary, which, by their direct and indirect processes, destroy not only local structures, but are the cause of degeneration and impairment of the function of other organs of the body.—*University of Iowa Dental Alumni Association.*

LOCAL ANÆSTHESIA FOR PULP REMOVAL—A WRINKLE.—A pledget of cotton placed over the unvulcanized rubber usually used to force the anæsthetic into the pulp canal serves a double purpose; it prevents the rubber squeezing out around the instrument used as a plunger, and any solution that escapes is absorbed by the cotton.

Exodontia and After-Pain*

D. C. W. COUPLAND, D.D.S., OTTAWA.



THE science of extraction of teeth has advanced to a system of removal based on sound surgical principles which places this operation in its just place in surgery.

It is a recognized fact that the extraction of a number of infected teeth at one time, with a general anaesthetic, is an operation of considerable consequence, and the removal of impacted third molars is a major operation.

It will be the purpose of this paper to deal briefly with certain problems in extraction, including:—

Choice of anaesthetic, Diagnosis, Asepsis, Extraction of simple and difficult teeth, post operative pain, after treatment and dry socket.

CHOICE OF ANAESTHETIC.

The anaesthetic factor is one that is settled by the individual operator, who, after careful examination of the area to be operated on, and with the knowledge of the patient's general condition, decides.

Operations requiring time and finesse of technique can be performed with greater ease under local anaesthesia. This includes the removal of small root ends, exostosed roots, buried roots and operations of this type.

When doing extensive work on patients suffering from systemic disease and on cases where the physician feels that there is an element of risk attached—it is a wise procedure to perform the simplest extraction, using a dilute local anæsthetic, waiting for a number of days and noting any reaction. Following this, the work is done, extracting not more than three teeth at one time, the length of time between the operations depending on the reaction of the patient.

Many will not agree with this procedure, but experience has proven that it is the safest.

Many patients should not have a general anaesthetic administered except in acute infections or some other special reasons. Among these are:—

* Paper read before the Ottawa Dental Society, March, 1928.

Alcoholics, Drug addicts, Athletes, Patients suffering from Diabetes, Exophthalmic goitre, Arteriosclerosis, High blood pressure and Endocarditis.

No local anaesthetic should ever be used in an acute infection. .

General anaesthetic, especially Nitrous Oxide and Oxygen, has a large field of usefulness in the extraction of teeth. All acute conditions, children, and a great percentage of routine extractions can be handled in a satisfactory manner with this anaesthetic.

Many patients report for extraction of teeth with a definite idea of the anaesthetic that they want. Most of these cases can be handled successfully with either local or general, and, wherever possible, the patient's wishes should be considered.

DIAGNOSIS.

Visual inspection of the patient and the field of operation should be the first procedure, a few words before an operation will often give valuable information and a general idea of the patient's general condition.

There will be no attempt to advocate which teeth shall be extracted, but it is taken for granted that this has been decided on mainly through the general health of the patient and the condition of the periodontal membrane.

Our greatest aid in extraction is a good x-ray picture of the tooth. This saves the dentist bumping his head against something that appears to be a normal case. The length of the roots and the width of the mandible (if it be a lower) will be shown, any abnormality of formation of roots, exostosis of roots, osteosclerosis surrounding the area or rarefied area, will be indicated. The position of the mandibular canal, mental foramen or antrum will be shown and often the x-ray will help in many other ways.

Pressure, by means of the index finger of one hand and the thumb of the opposite hand, will give valuable information. If absolutely no movement occurs when gradual pressure is applied toward buccal, and then towards lingual, the tooth can be safely viewed with suspicion.

Firm teeth standing alone are often very difficult, they may become ankylosed, or the roots may become exostosed. Teeth that show marked alveolar recession, but are firm in the mouth, are often very brittle.

The very loose teeth should be viewed with suspicion. It may indicate a fractured root or a loss of bone around the tooth.

A few minutes in careful examination may save many minutes in the operation and much embarrassment to the dentist.

ASEPSIS.

The brilliant attainments of modern surgery are, in the largest measure, dependent upon the laws of asepsis. The extraction of teeth is a surgical operation and all efforts should be directed to secure and maintain surgical cleanliness. It is recognized that the rigid measures for the maintenance of asepsis in a well-conducted hospital operating room, cannot be entirely carried out in office practice. One also realizes that the operating room routine of an exodontist is not an ideal solution for the man in general practice, but, with careful study, the system can be devised and adopted, which will be simple and yet adequate to meet all requirements.

Certain points of interest in sterilization will be mentioned:—

Steel instruments are boiled for fifteen minutes. Before boiling sharp instruments, the cutting edge should be wrapped in absorbent. Steel instruments should be put in boiling water, not in cold water, and brought to a boil. Sodium bicarbonate should be added to the water to prevent rusting of instruments.

Glass syringes should be placed in cold water and brought to a boil, and boiled for five minutes. The water for these should not contain Sodium Bicarbonate, as this attacks the glass.

The Autoclave is the best solution for the sterilization of gauze packs, swabs, sponges, towels, etc. Hospital gauze is cut into different shapes and folded, a certain number wrapped in unbleached muslin, sterilized, and placed in an airtight cabinet until needed. Small compresses 3" x 2" and six-ply in thickness, are very useful, throat packs, 12" x 4" and four-ply in thickness, with a twelve-inch tape attached, are used for the Nitrous Oxide cases. Smaller sponges are made by cutting cotton rolls diagonally. Towels are wrapped, twelve to the package, sterilized and placed in a cabinet.

Sterilizing solutions have long been a problem to the dentist, those solutions that rapidly sterilize either rust steel instruments or have other disadvantages. After a long series of elimina-

tion, Parke David Germicidal solutions 1:5000 was decided on and has been used for the last three years.

The large-sized Sorenson electric suction has been used in office routine for a number of years and is a source of great comfort and convenience, giving clear vision and a comparatively bloodless field, even in general anaesthesia.

THE EXTRACTION OF TEETH.

Every text-book on the subject deals with surgical anatomy, instruments, position of the patient and operator, extraction technique of upper and lower teeth, so we need not take up very much time with these phases.

Every operator should possess a thorough knowledge of the anatomy of the teeth and surrounding parts, and, through time, select his instruments by a process of elimination and addition, adopt a position of operation that seems to suit him and apply the principles of extraction movements suited to the different teeth.

When the forcep is applied to a tooth, an attempt should be made to make the tooth a part of the forceps. The beaks must be applied, parallel with the long axis of the tooth, and the root should be grasped as high up as possible, thus reducing the distance between the apex and the point of application and therefore reducing the leverage.

With a gentle lateral movement and pushing force, the beaks are gradually insinuated beneath the gum margin and over the root, until the portion to be grasped is reached. A gentle pushing force is maintained, even after the tooth has been firmly grasped, so that the pressure is transmitted through the entire length of the tooth, as though trying to force the tooth through the socket. This force prevents the lingual root from slipping toward the crown and fracturing the tooth, and loosens the attachment between the tooth and alveolus. A labial or lingual movement and in some case, rotary movement, is now gently used until the tooth is extracted.

During the extraction of a lower molar, a portion of one root often breaks, this, as a rule, can be quickly removed, using a right angle elevator in the socket of the extracted tooth, the septum is removed and the root elevated.

If the crown of a molar fractures at the gingival margin, usually a wedge-shaped elevator can be inserted at the bifurcation. This will separate the roots, often removing one at

the same time. The technique for extraction of one molar root can then be carried out.

Where the molar crown fractures and no bifurcation exists, a wedge-shaped elevator can be inserted on the buccal, and forced downwards. It may be necessary to remove a slight ledge of bone on the buccal, in order to use a buccal application.

Pulpless upper teeth will often break, leaving the apical third of a root. An application of a small rounded sharp elevator between the root and the lingual wall, and a combination of lateral and rotary motion, will often dislodge the apex.

DIFFICULT EXTRACTIONS.

Certain teeth resist attempts to remove them.

Where there is a possible chance that the tooth may respond to the forceps, and simple applications of an elevator, the patient can be informed that you will gently attempt to loosen the tooth, but that it is of such a type that it will likely fracture. In many cases, these teeth will have strength enough to slightly expand the buccal or lingual wall and, with care, may be removed in one piece. If they do fracture, a simple application of an elevator may accomplish the desired result. If it does not, the root can be dissected out.

Where judgment and experience show that a simple method may prevail, it should be given a chance.

Where an x-ray of the area shows that it is a physical impossibility to remove the tooth simply, it is unwise to attempt extraction in the ordinary way.

An operation for these extractions should be carried out on strictly surgical principles and the tooth or root carefully dissected out.

An incisor mesial to the field of operation is usually all that is necessary. The incision is so planned that the sutured flaps will rest on bone. The soft tissue is carefully retracted, making sure that the periosteum is raised with the tissue. The bone over the root is removed with sharp chisels or gouges. The amount of bone removed varies from a slight ledge around the neck to a complete bone removal, exposing the bulb of a severe exostosis. The tooth can be removed with a suitable instrument and the bone edges carefully smoothed down. The wound should be irrigated with a warm saline solution to

remove any loose spicules and the flap moulded into place and sutured, if necessary.

Certain things should be remembered in an operation of this type. In removing an exostosed lower bicuspid, the mental foramen must be carefully guarded, even slight stretching of the nerve in retraction of the flap may result in anaesthesia of the lip, extending over months. Simple removal of certain long-rooted molars or bicuspids, or certain impactions, may cause numbness of the lip which may continue for a long time. X-ray of the sockets of these cases usually reveal an apparent direct relationship between the mandibular canal and the tooth, and an apparent attachment, or connection, between the tooth and the sheath of the canal. Many an operator has been blamed for causing this condition, when in reality, he has nothing to do with it. Where the x-ray shows this condition it is wise to advise a patient that if numbness does result, it is not the operator's fault.

Discoloration of the part (ecchymosis) may result, despite all gentle manipulation, this will disappear within a few days, leaving a yellowish stain for a day or two. This unpleasantness will appear on certain patients, even on slight operation, and should cause no alarm.

A careful flap operation is a conservative operation where indicated, saving time and worry to the patient and operator, and reducing trauma and after-soreness, to a minimum.

POST OPERATIVE PAIN.

An aseptic operation, proper anaesthetic technique, and an operative technique based on sound surgical principles, will minimize pain that is a result of trauma.

Pain is not an accurate indication to the condition of the socket. It varies with the individual. A pain that might keep one patient awake all night may cause no particular discomfort to another. Sleep is the greatest aid that the dentist has at his command in combatting pain following an extraction. A slight amount of pain will cause great discomfort to a patient following a sleepless night, where the same amount of pain will pass unnoticed by one having a sufficient amount of sleep. Thus, use of sedatives to relieve the patient and allow him to sleep should be the routine practice.

After the operation the patient is given the following print-

ed instructions as the care of the mouth. These were given me by Dr. Fred Molt, of Chicago:

A rapid and complete recovery may depend as much upon the patient's after-care as upon the operator's skill.

The blood clot that fills the wound should not be disturbed. A grayish appearance, a slight odor or slight swelling does not indicate infection.

After 24 hours the mouth should be frequently cleansed with a warm salt solution (one-half teaspoonful in a glass of water). **Do not use Peroxide.**

After extractions or oral operations some pain and discomfort must be expected. Difficult extractions, impactions and surgical operations in the mouth are severe operations. The after-care is particularly important in these cases.

Apply an ice-bag or cold wet towels to the face over the operated part to control swelling and bleeding. The ice-bags should be applied continuously for two hours, and for thirty minutes of each hour following. If intense pain should be caused by the cold, however, alternate or replace with hot wet towels. An Epsom Salt solution—1 lb. to 1 qt. water—for hot or cold applications is desirable. Never use dry heat (hot water bottle or electric pad) directly on the face.

For the control of pain after operation, use the tablets as directed on prescription. Stronger remedies or narcotics should only be taken on the advice or prescription of the physician or the operator.

NOTE:—Our instructions are not intended to supersede those of a physician, and a patient under a physician's care should consult him before resorting to internal medication.

To control excessive bleeding, sit upright and remain quiet. Apply cold applications externally. Place a firm pad of antiseptic gauze or cotton over the wound and bite down firmly for thirty minutes. Repeat if necessary. If the bleeding continues freely report to this office or call your dentist or physician.

To avoid or relieve a stiffening of the jaws or muscles, chew chewing-gum.

Bleeding into the tissues (ecchymosis) may cause a discoloration externally that may resemble a bruise. This will disappear in a very few days.

Small fragments of bone working to the surface as the wound heals should cause no alarm. The edges of the bony structure that remain after extraction are often mistaken for fragments of tooth. These are gradually absorbed.

Our interest in a case does not end with the completion of the operation. If after following these instructions you still have severe pain or if any swelling occurs after the wound has apparently healed, return for observation. If instructed to return at a special time do so or report by telephone.

After extractions, especially where a number of teeth have been removed with Nitrous Oxide, the individual sockets are cleared out with the suction and the socket inspected. Small edges of amalgam often get into the lower sockets. These will cause a great deal of discomfort if left. At this time they can be easily detected and removed very simply, also loose edges of septum can be picked off and molar sockets with the buccal walls distended, can be moulded back to place.

Following an operation where a difficult tooth has been removed, a patient may report, within the next forty-eight hours, that considerable pain is present. Examination shows the socket filled with, apparently, a healthy blood clot, the patient

takes the sedative and applies the ice-bag, or moist hot compresses, the pain subsides and he has no further trouble. This is post operative, due to excessive trauma.

Then again a patient may report, suffering great pain, and an examination show the blood clot to be entirely broken down and a dry socket to be present.

DRY SOCKET.

This is one of the most annoying causes of post operative pain. The dry socket is an inflammation of the alveolar process forming the tooth socket, caused by bacteria. The majority of dry sockets occur following the removal of pulpless teeth, often with no rarefaction involving the root ends, and in patients of lowered resistance. Local anaesthesia has been blamed by many men for the cause of this condition by causing local anaemia preventing a flow of blood to the part and thus delaying the formation of a protective blood clot, but we must not forget that cases of dry sockets also follow some extractions with Nitrous Oxide.

When a pulpless tooth is removed, the organisms that are probably present in the apical region are activated and a local circulatory disturbance occurs, with the resulting inflammation of the marrow of the bone. Thus, we have an osteomyelitis present. If the bacteria are virulent and the patient's resistance low, the infection may spread through the narrow spaces until an extensive osteomyelitis follows. Fortunately, in the great majority of cases, the condition localizes about the involved socket. The result of the inflammatory process may be of two kinds, either resolution of suppuration and death of tissue.

If the infection be a mild one, the inflammation will subside and the parts will be restored to normal. Granulation will then follow and the socket start to heal.

If the patient's resistance is low, or the bacteria are more virulent, the inflammatory exudate of the marrow, due to the unyielding nature of the bony confines, cuts off all circulatory nutrition to the parts. Stasis occurs and the death of the bone follows. Sequestrae are formed and are extruded as a rule from the mouth of the socket

The chief symptom is a great pain of neuralgic character, the patient is harrassed and unable to sleep. Examination of

the socket shows the bare bony walls with no sign of healthy granulations, and an offensive odour is present.

Should resolution occur at this time the socket will become lined with greyish granulation which later becomes pink, and gradually the socket fills in and heals.

If suppuration sets in, the mouth of the socket will be covered with a mushroom-like growth, with some pus present. Through time, the bone edges loosen. When suppuration takes place, pain is usually absent. At times a pus discharge on the buccal gum, indicates a loosening of a piece of bone. An incision will aid the exfoliation of the bony edge.

TREATMENT OF DRY SOCKETS.

Patients suffering with this condition are not in the most agreeable frame of mind, and appreciate gentleness and kindness. The treatment is conservative.

The socket is gently irrigated with a saline socket and a light dressing of quarter-inch iodoform gauze, moistened with campho-phenique, aspirin and glycerine inserted and changed every twenty-four hours. Ice-bags are advised twenty minutes to the hour, or, if this depresses the patient, moist hot, compresses, ten minutes to the hour.

Frosst 262 (Cinereum) are administered every four hours if necessary, to relieve the pain, the patient remains quiet and warm and the general resistance is kept as high as possible. If, after four or five days' time, the pain still occurs, as soon as the dressing is removed, a light thin bladed curette is slipped to the bottom of the socket, and usually, some granulation can be felt. Holding the curette lightly in the fingers and without any anaesthesia, the socket fills with blood, and our troubles with pain are usually over. As the socket has been dressed for four or five days with antiseptic remedies, the tissue will have been sterilized to the extent that danger of spreading the infection should be eliminated.

Frequently, after all treatment has been stopped, a mushroom-like growth will appear at the mouth of the socket. This growth bleeds easily, and, upon pressure, pus exudes from it. This is an indication that some dead spicules of bone are present, often within the mass itself. The spicules can usually be removed with a tweezer, and the mushroom-like be made to disappear with a liberal cauterization with Trichloracetic acid.

Experimental Investigation on the Action of Eugenol, Thymol and Decomposition Products of the Pulp on the Periodontium

G. FELDMANN, DEUTSCHE MONATSSCHRIFT,
Nov. 15, 1927.

Abstracted and translated for Oral Health by J. Stanley Bagnall, D.D.S., Dalhousie University.



R. G. FELDMANN in this paper makes an interesting contribution to the series of papers which have been appearing for some time in the Deutsche Monatsschrift on the effect on the periodontium of drugs used in the pulp canal.

Dr. Feldmann refers to the long use of eugenol and thymol in pulp canal treatment. Miller in 1892 proposed the addition of thymol to a paste for the mummification of the pulp. Müller found that when it was used alone as a root canal filling it disappeared from the canals in a time varying from a few months to a year. Boenecken in 1891 advocated its application as a powder by means of a cotton wool tampon on the walls of the pulp canals after their mechanical and chemical cleansing. The canals were then filled with chlora percha and butta percha. He also advocated its use in deep cavities. Fischer used a 25-50% solution of thymol in alcohol for the disinfection of dentine, after the removal of carious material. The preservative qualities of thymol was known to the Egyptians, who used it in their embalming process. It is non-poisonous, non-irritant and possesses certain anaesthetic properties. It is with difficulty soluble in water and possesses a definite degree of diffusion. It thus affects only the immediately adjoining tissues without affecting the deeper layers. In order to obtain a lasting disinfection it is necessary not only to impregnate living, or dead, material, but to penetrate deep into the dentine canals. Thymol can accomplish this only in strongly saturated solution and with the assistance of some impregnation method. Fischer in 1912 introduced a preparation called "Pulpacavol" which contained as its main principle thymol, in association with camphor and chloroform. This was designed to im-

pregnate the dentinal canals and bring about a lasting disinfection. This preparation is used with good results in cases of partial acute and chronic pulpitis, after thorough cleansing of the canals. Blessing, one year later, reported unfavorably on the disinfecting qualities of thymol alcohol and "Pulpacavol". The former receiving the most favourable report.

Ethereal oils, such as Oil of Cloves, were in use previous to 1874.

The definite problem set in this investigation was the effect that thymol and eugenol have on the paradontium when sealed in the root canals. The work was carried out on dogs. Canals opened under morphine-chloroform anaesthesia, with particular attention to asepsis and the coronal and root portions of the pulp removed. Bleeding stopped, canals washed and dehydrated with ether-alcohol. A small amount of zinc oxide mixed with a saturated solution of thymol in alcohol. This paste slowly pushed to the end of the canal as the alcohol evaporated. In other cases the canals were filled with melted crystals of thymol, by the aid of a hot instrument. The cavity in the tooth sealed with cement and amalgam. The eugenol mixed into a firm paste with oxide of zinc. The canals filled with this mixture and the cavities filled as before. For a control the root cavities were opened and cleansed, under the same precaution, the root cavity left unfilled and the tooth cavity filled with silver cement. A total of 50 experiments (19 with thymol, 14 with eugenol and 17 with pulp extirpation only, without root filling) carried out on 7 dogs of 1-2 yrs. and 8-10 years. The duration of the experiments was from 1-2 months in some cases and in others continuous for 9 months. A few lasted for a week only. The teeth chiefly used were the incisors and premolars and intact teeth were in all cases left between the teeth investigated. The post mortem examinations were made on fixed and decalcified sections made through tooth and surrounding tissues.

1st Series—Examination of 11 cases of canals filled with a paste of zinc oxide and thymol for periods of 7 days, 33 days and 2 months. This series showed some inflammation of the periodontium in the apical region. An examination of 8 additional cases with the same root canal filling made. The duration of the experiments in this group was $6\frac{1}{2}$ months, $7\frac{3}{4}$ months and 9 months. An examination of the results of this series showed that in one case changes in the periodontium had

occurred in 33 days. At the end of 6-9 months there was diffuse infiltration of the periodontium with lymphoid cells and in some cases small pus foci. There was an evident connection between the injuries to the pericementum and the terminal ramifications of the pulp canal.

2nd Series—Examination of 14 cases where the root canal was filled with zinc oxide and eugenol. Duration of this experiment was 7 days, 33 days, 6½ months, 7¾ months and 9 months. Just over half of these cases (some of which lasted for 7¾ months) showed no changes in the periodontium. In the remainder the periodontium was moderately infiltrated with lymphoid cells and sometimes with leucocytes and plasma cells. The results, as a whole, were very similar to those obtained in the first series.

3rd Series—Examination of 17 cases where there was pulp extirpation, without canal filling. Duration of this experiment was 7 days, 2 months, 6½ months, and 7¾ months. In the cases which lasted for 6-8 months the terminal ramifications of the pulp were found densely filled with leucocytes which penetrated into the adjoining pericementum where the changes gave a picture of oedema, diffuse infiltration with lymphoid cells, plasma cells and leucocytes. In one case pus foci were visible. In others there was resorption of the dentine and cementum. One experiment which lasted for 6½ months did not show any change in the periapical tissues. Here the root canals were so small that only a partial pulp removal was possible.

Summary—With the thymol and eugenol no changes were visible in a week, but after 1-2 months there was massive round cell infiltration of the periapical tissues. In about half the cases running to 6-9 months the periodontium was unchanged, in the remainder the picture resembled that at the end of two months, but more intense in degree.

The reason for the changes in this last group is interesting. The thought that it is due to either eugenol or thymol may be questioned since they were more intense where neither of these drugs were used in the root canals. It is probable that some condition exercises an influence in all three series, but most intensely in the last, where neither of these two drugs were used. In the third series both the localized and diffuse infiltration occurred in the area in association with the terminal ramifications of the pulp. In the first two series where there

were no changes in the periapical tissues, the terminal ramifications of the pulp were either empty or filled with undamaged tissues. In the cases where the periapical tissues were damaged these terminal ramifications were filled with leucocytes.

While pulp removal and canal filling may be a cause of trauma it is doubtful if this was the explanation since there was no change apparent at the end of a week.

Schröder in 1912 expressed the belief that the inflammation phenomena in the periodontium was due to toxic products from the decomposing pulp. This fact was fully confirmed in this series of experiments. A condition of particular importance is due to the remnants of pulp tissue which are not removed from the tortuous canals. Fischer stresses the changes which take place in the pulp canal with advancing years leading to narrowing of the lumen, formation of irregular pocket-shaped depressions in the walls, irregular ramifications of the terminal branches of the pulp and penetration of the pulp tissue into the dentine. Fischer showed in a collection of 600 teeth that the apical outlet was complicated in 35% of lower bicuspid, 58% of first upper bicuspid, 40% of second upper bicuspid, 80% of the first and second upper and lower molars, 94% of upper third molars, and 58% of lower third molars. Jungheim (1924) and Hess (1925) made similar observations.

Fischer stated that because of its apical anatomy, the adult root canal lent itself to the retention of putrescent material, bacteria, etc. It is not possible to obtain a residueless removal of the whole pulp canal contents of the adult. Then in the presence of this gangrenous material it is not possible to assure lasting results in treatment.

These statements agree with the findings of this series of experiments and there is in all cases a clear connection between the diseased portion of the pericementum and the terminal apical ramifications of the pulp. Thymal and eugenol at first exercise a conservative action on the soft tissue remnants, but in time this mummifying action gradually disappears and the remaining portions of soft tissue succumb to the general decomposition. The final picture is then the same as in the control group. The difference in the times when these changes take place is largely dependent on the peculiarities of construction of the particular root canal.

It is not likely that the changes reported were due to any accidental contamination at the time of the operation. The

operations were carried out most carefully and the introduction of any accidental bacteria into the canals would be taken care of by the antiseptic action of the eugenol and the thymol. Further, the changes did not appear until after the lapse of some time.

The author draws the following conclusions from the series of experiments:

1. Thymol and eugenol, as such, are not in all probability irritants to the periodontium.

2. Both preparations act in a positive conservative manner on the remnants of pulp tissue.

3. The duration of thymol and eugenol action is not the same in all cases and varies from 2-6-8 or more months, apparently depending on the construction of root canals and periodontium.

4. After pulp removal the remaining pulp remnants in lateral canals, apical ramifications, and the various depressions of the root canal undergo decomposition; then these decomposition products pass through into the surrounding and adjoining periapical tissues and call forth inflammatory reactions of varying intensity.

5. Therefore the filling of root canals with thymol and eugenol in a paste mixture or with melted thymol crystals cannot be considered as a perfect method. However in a whole series of cases it gave a favourable result, and indeed the possibility of the commencement of an inflammatory reaction of the periodontium is both qualitatively and quantitatively reduced.

TWO MONTHS' INDENTURESHIP FOR DENTAL NURSES.



AFTER the members of the Dental Nurses' Class have completed their course in the college, they are required to spend an indentureship of two months in the office of an ethical practitioner, before receiving their diplomas. Any Dentist wishing to take one of these young ladies in his office for the prescribed time kindly communicate with

W. E. WILLMOTT,
Sec'y., R.C.D.S., 240 College St., Toronto.

Deficiency Diseases and the Teeth

D. J. BRASS, D.D.S., YORKTON, SASK.



IN this district we have people from almost every country in Europe and from many parts of this continent. It would seem that the narrow constricted arch with jumbled teeth, high narrow palate and thick alveolar process, accompanied with faulty tooth structure and faulty speech, are manifestations of nothing more nor less than rickets. Many of these conditions are peculiar to the people from the City of London and the large industrial cities of Britain, where the smoke nuisance and a heavy moist atmosphere prevails to a greater extent perhaps than elsewhere in Europe or America. Also we are led to believe that ordinary diet of these people is particularly faulty.

Following up that thought the suggestion came to me that probably other manifestations of a more modified form, whether of malformed jaws, faulty tooth structure or faulty tooth eruption, may to a considerable extent be placed in the same category, and may be provided against by the same methods used to rectify or prevent rickets elsewhere in the body. Quite frequently cases have presented themselves, that suggest the confirmation of that theory, although absolute proof would be very difficult in most cases. One indication in particular, the thick heavy alveolar process, suggests itself as a manifestation of rickets. Lack of symmetry in the arches when other cause may be excluded, is probably an indication of malnutrition. Without going into a detailed discussion of metabolism and nutrition, it would seem reasonable to suppose that the bones of the face would be affected by the conditions that affect the long bones, and the bones of the skull, where thickened or otherwise malformed, due to rickets.

We have recognised certain faults or markings on the teeth, as due to the interference of nutrition by some disease or "flare-up," during the period those particular parts of the teeth were forming, and have applied the term 'atrophied teeth' to those so marked. Broadly speaking it is a case of rickets which in the case of the teeth remedial measures will not modify. Is there not the further probability that the enamel appearing to the eye or through the lens, as normal, may in reality be sufficiently affected throughout by faulty diet and

living conditions, during the period of formation, as to reduce the resistance of enamel to decay. This would be aggravated by a faulty diet after eruption, first: by the enamel coming in contact with the food; and second, by faulty secretions in the mouth.

The knowledge science has given us of the changes in the composition of the blood brought about in the treatment of rickets might lead us to believe that the frequency of decay of the teeth of women during the prenatal and nursing periods, may be nature's method of attempting to provide for, and as far as possible protect, the babe at the mother's expense, when the mother's living conditions are at fault. That is to say, after the bone-forming period is past, the conditions of the body of the adult may be similar to those in the rachitic child, (without, of course, the manifestations that exhibit themselves in the growing child), lowering the resistance of the body to disease of the teeth or other infection, and predisposing to rickets in a less marked degree in the new born child.

We dentists have stressed the importance of diet and rightly so, but is it not possible that sunshine, or where sunshine is not possible, its substitute, are equally important? To put it more concisely, proper diet, sunshine, fresh air, and exercise are equally essential to health.

The American Dental Society of Europe



THE forty-seventh annual meeting of the American Dental Society of Europe will be held on 30th July, 31st July and 1st August, at the Residential Palace, 155, rue de la Loi, Brussels, Belgium, and not, as stated in previous notice, at the Palace Hotel.

J. A. HOLDEN,
Hon. Secretary.

Federation Dentaire International



THE Thirty-Second Session of the Federation Dentaire International will be held in Chicago, 1st-5th August, 1928.

The programme will include meetings of the commissions as well as a banquet and closing luncheon. All the meetings will take place in the University and the Disch Hotel will be headquarters.

Combined Ontario and Canadian Dental Convention---Every Dentist Cordially Invited



YOU are cordially invited to attend the combined meeting of the Canadian and Ontario Dental Associations to be held in the King Edward Hotel, Toronto, June 4th, 5th, 6th and 7th, 1928.

The Canadian Dental Association will be the guests of the Ontario Dental Association and an excellent programme of essays and clinics has been arranged by the Ontario society. Plans have been made for the entertainment of those who attend, and their friends. The display of Manufacturers' Exhibits will be the best ever assembled in Canada.

American dentists will be equally welcome and will be registered as guests of the Association.

The organization of the Canadian Dental Association is progressing satisfactorily, and through this national agency the dentists of the Dominion will be united in their own representative Association. Provision is being made for a business meeting of the Canadian Association on the afternoon of the 4th. It is expected that some very important matters in connection with the future of Dentistry in Canada will come up for discussion at this meeting.

EXCEPTIONALLY FINE PROGRAMME ARRANGED.

Among those from outside Canada who are to take part in the programme are the following:

Dr. R. W. Bunting, Ann Arbor; Dr. H. R. Raper, New Mexico; Dr. Jostin D. Towner, Memphis; Dr. Sherman Davis, Indianapolis; Dr. Thaddeus P. Hyatt, New York; Dr. R. O. Schlosser, Chicago; Dr. Edward Kennedy, New York.

Any further information desired may be obtained from Dr. F. J. Conboy, East Block, Parliament Bldgs., Toronto.

An Open Mind Always



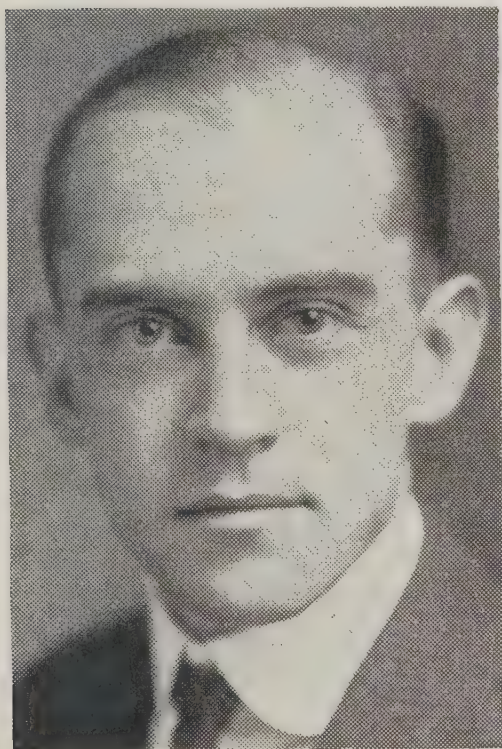
FOOLISH consistency is the hobgoblin of little minds, adored by little statesmen, and philosophers and divines. With consistency a great soul has nothing to do.
—Emerson.



DR. THADDEUS P. HYATT



DR. R. O. SCHLOSSER



DR. H. R. RAPER



DR. SHERMAN L. DAVIS

ESSAYISTS ATTENDING THE COMBINED ONTARIO AND CANADIAN DENTAL ASSOCIATIONS' CONVENTION.

Canadian Pioneers of Dentistry

BY WALLACE SECCOMBE.

DENTISTRY is such a young profession that it lives mostly in the present and in the future. The problems of the hour are so pressing that little thought is given to the past. And this is a healthy condition indicating as it does the virile, progressive and scientific spirit that has taken possession of modern Dentistry. But the work of the Canadian Pioneers of the profession is none the less appreciated. The torch is being handed down from generation to generation and is being carried to new heights by the younger men. Unfortunately the pioneers of earlier days are now little known by the profession generally, and we propose publishing from time to time a series of personal sketches with photographs, that the work of those who blazed the early trail may be better known to the younger generation of dentists that have now group up.

So far as we have been able to learn there are a great many dentists throughout Canada who have been in practice upwards of fifty years. And what a tale they could tell of the advances of dental science and practice during the past half century!

Next issue ORAL HEALTH will publish a short personal history, with photographs, of Dr. R. E. Sparks of Kingston, who has completed fifty-three years of successful dental practice. All honour to the Canadian Pioneers in Dentistry who each in his own way has made his contribution to his chosen profession.

It is impossible to personally reach every pioneer of Canadian dentistry. And so the responsibility is placed upon the shoulders of members of the profession who know of such, to secure the facts, write a short article for publication and forward this along with a personal message from the pioneer and, if possible, a recent photograph. The name of the author of the article should accompany the manuscript. The writer will greatly appreciate your co-operation. It is hoped that we shall be able to publish one of these "Dental Pioneer" sketches in each issue, commencing with June.

India's Native Dentists

CALAMITIES—A MODEL PRACTITIONER—WHEN AN
INJECTION FAILS.

BY GEORGE CECIL.

ON ECONOMY BENT.

INDIA'S coloured dentists may be divided into three classes; those of pure Indian blood, the Parsee dental element, and the half-caste community—for the Eurasian is, to all intents and purposes, a native.

The *kerani*, as he is known to the Indian, strongly resents attempts to belittle his pretensions to European birth, especially when he bears an honoured Scotch or Irish patronymic. But the dark-complexioned dentist, speaking English with a strong native accent, and being thoroughly Asiatic in his ways and thoughts, cannot, by the widest stretch of imagination, be considered a European. A Macpherson or an O'Donoghue by name; a Ram Chunder Dass in reality.

The Hindu and Mahometan dentists (of whom there are thousands) do not invariably possess that skill which is expected of a practitioner. To intrust them with the filling of a cavity is not always wise, for the *dant wallah log* sometimes omit to get rid of the decay. . . . In extracting the frail remains of a much-neglected tooth, and in the East teeth require frequent attention, they occasionally forget to remove every particle of the root, thus incontestably proving that the economical patient would have secured better value for his hoarded *rupees* by going to one of the many qualified American and English dentists who labour in India. Such calamities, however, at least serve a good purpose, since they show that first-class dentistry alone is reliable, and that incompetent native operators, if meaning well, sometimes do badly. Nothing like an object-lesson.

Happily, there are exceptions. Should an uneasy coloured mother request Ram Chunder Dass to extract her offspring's loosened first tooth, he does so by adroitly inserting a finger and thumb in the infant's mouth. Yet, when it comes to plate and bridge work, neither the Hindu nor the Mahometan is as successful as could be wished. They probably do their best;

but to afford satisfaction, more than mere endeavour, is necessary.

HARMLESS CURRY BLAMED.

Every now and then a case of blood-poisoning occurs, with the result that the highly-aggrieved victim brings an action for damages. Prior to application being made to a court of justice, the obliging police make a raid on the native dentist's surgery, there to discover forceps, which probably have not been cleaned since the day they were purchased, and other dirt-encrusted instruments and dental appliances, which are in a filthy state. The plaintiff's *vaḳeel* (pleader), armed with this supplementary and damning evidence, prepares his case, which usually is heard before a white judge and a black jury. The defendant swears, by the Beard of the Prophet, or by Shiva, Kali, or the monkey god, according to whether he is a Mohametan or a Hindu, that, when operating, special care was taken to use scrupulously clean forceps. . . . "The plaintiff, though expressly told not to eat curry till the wound had completely healed, partook of two platefuls of the dainty an hour after the extraction. Naturally, the spices contained in the obnoxious dish set up blood-poisoning." Witnesses (they are easily bought in corruptible India) solemnly affirm that, upon such occasions, curry should be avoided like the plague. Further evidence, to the effect that no dentist in the district has so unsullied a reputation as the defendant, also is heard. The *ḱutcheri* (court) rings with eloquence.

Finally, the judge, looking at his watch, notices that *tiffen* (luncheon) time draws near. Addressing the jury, he informs them—in fluent *Hindostani*—that sufficient evidence has been heard; "enough for a dozen cases," adds the humourist. The jurors are further informed that justice lies in their hands, that a fair decision alone will be acceptable. Twenty minutes later, the foreman announces the verdict, "guilty, with extenuating circumstances." . . . "What are the 'extenuating circumstances'?" thunders the *cadi*. . . . "The poor man has a large family," replies the foreman. . . . "So have I," facetiously remarks the judge, funny to the bitter end. . . .

Native dentists rarely give an injection, which, perhaps, is as well, since the needle, in addition to possessing a rusty point, might not have been sterilized. . . . One trembles at the mere thought of the horrid possibility.

TACT AND PATIENCE.

The Parsee, having brains, and that exceptional thoroughness which has been handed down to him throughout the fleeting decades, may be depended upon to carry out his work properly. He operates successfully, Parse-inserted fillings usually endure as long as the guarantee lasts, and even longer; the artificial teeth which have been used when providing a patient with a plate are an improvement on nature. Parsee dentists are the very soul of tact; "patience is a virtue," has ever been their professional motto. Extraordinarily painstaking, as humane as it is possible for the man behind the instrument to be, and possessing a reassuring manner, Danjee-boy is "the right man in the right place." His fees are considerably less than the staggering rates charged by white practitioners, each of whom is anxious to retire on a fortune at the earliest possible moment, and to shake the dust of India off his feet. Consequently, many European exiles favour the Parsee, in whom they have implicit faith. A well deserved tribute.

Praise cannot, alas, be accorded the half-caste dentist, who seldom is anything but a dunderhead, or, as the vernacular has it, an "*oolu ka butcha*" ("son of an owl"). Even those Eurasians who actually know something about dentistry are so unintelligent, so nervous and so wanting in self-reliance, that few can be depended upon to put dental knowledge to good account. None are more careless than this dusky Scotch, or Irish, named operator, nor so astonishingly unreliable. The *kerani* experiences little difficulty in passing the preliminary test, imposed by the Government, and the more difficult examination which follows it, for, like the parrot, the fellow learns to repeat that which he has been taught. When, however, asked to remove a tooth, it is on the cards that the Eurasian may extract the wrong one, or, bungling the operation, he mangles the wretched patient's jaw. Positively, a hopeless apology for a qualified dentist.

Half-caste "assistant surgeons" attached to military hospitals occasionally desert the path of medicine for that of dental surgery. Having, while in "Government employ," had many opportunities of practicing extraction on native soldiers, they feel that nature has intended them to be dentists. Their patients think otherwise, especially when an improperly-

administered injection does not reach the tissues. A frequent occurrence.

MAN WANTS BUT LITTLE HERE BELOW."

The problem of keeping the wolf from the door is made easy for the native practitioner. A tiny whitewashed bungalow, containing sufficient accommodation to provide a surgery and waiting-room, is rented for the equivalent of fifteen dollars a month. Rice and fruit—the staple diet—enable the dentist to eat his fill at a cost of fifty cents a day, though *jelages*, a sweetmeat made of coarse brown sugar and rancid butter, and sold at twenty-five cents the pound, often is added to the frugal midday and evening meal. The round cap, voluminous pantaloons and *chupkun* (single-breasted frock coat), all of white cotton, worn by the *dant wallah*, run away with very few *rupees* and last many years. No dentist in all the wide world dresses more inexpensively, or consumes less food.

The Parsee is a very different proposition. In Calcutta, Bombay and Kurachee, he rents a couple of rooms in the busiest part of the city, receiving his patients there. Both are well furnished, interesting engravings adorning the walls, though, if the occupant has an English *clientele*, portraits of the British Royal Family may (tactfully) be substituted. . . . The furniture of the waiting-room is tasteful, sometimes being procured from Burma, the land of *teakwood* and intricate carving. A fine Persian carpet partly covers the boarded floor; the brass doorhandles have been polished into a state of perfection, light positively radiating from them. Literature, consisting mostly of dull English weekly papers, such as "Punch", "The Illustrated London News" and "The Graphic", await the selection of waiting patients. Roomy chairs invite slumber; an electric fan cools the heated air.

GUARD AGAINST FUTURE PULPITIS.—Under every alloy filling or gold inlay of any size, except the smallest cavities, use a fairly thick lining of any ordinary zinc cement, mixed as thick as it can be used. In cases of near exposure or extreme sensitiveness, use gutta-percha for the first part of the lining. Such linings will prevent thermal shock or electric action. There is nothing more difficult to handle than a tooth with a large inlay in it, when such a tooth develops a severe pulpitis.

Report of the British Research Council



THE annual report of the Medical Research Council for the year 1926-27, which was issued recently, is a document of interest and importance. The field of work covered is so wide, and the researches described are so many, that first impressions are apt to be wholly inadequate.

"With every year of progress in science," the report states, "it becomes increasingly clear that medical science is one and indivisible, whether for temperate or tropical climates, and that nothing but gain can come from ignoring all geographical considerations as such. The work should be done wherever the man best fitted for it can most easily find his opportunities for progress, whether in laboratory work or in a field inquiry, and whether at home or far overseas."

The first work which is referred to in the report is that of Sir Thomas Lewis on the blood vessels of the human skin and their responses. This work, which was begun during the war, when Sir Thomas was devoting his attention to the condition known then as the "Irritable Heart of Soldiers," has assumed very great importance. It has been shown that the capillaries possess independent powers of changing their calibre. It has also been shown that almost all forms of injury to the human skin, or irritation of it, act by causing the liberation of a chemical substance which, when liberated, produces the reddening and other familiar phenomena of local irritation. This substance seems to act like the substance discovered by Dr. Dale, and called by him, "histamine." The idea has been suggested that certain of the responses of the body to nervous stimuli, as well as to injuries and irritations, may involve the release of a histamine-like substance. Thus fresh light has been, and is being, shed on the circulation of the blood and a new conception of the mechanism of circulation in the organs built up.

The work on the filter-passing viruses continues, but it cannot be said that progress has been considerable during the past year. The Medical Research Council entertains hope that the researches of Dr. Gye in connection with the origin of cancer may be fully confirmed, but full confirmation has not yet been obtained. Dr. Gye, it is stated, "has found no reason to modify his views."

The study of the vitamins necessarily receives a large share of attention. The report contains a careful historical account of the discoveries which have contributed to present-day knowledge and makes reference to the now well-known fact that the substance called ergosterol is a powerful absorbent of ultra-violet rays. Ultra-violet rays, again, are, in fact, Vitamine D, so that, in irradiated ergosterol, science now possesses a cheap and effective vehicle of this all-important accessory food factor. By adding irradiated ergosterol to foods, such, for example, as margarine, the nutritive quality is greatly improved.

Vitamine D is the anti-rachitic factor and prevents rickets, even in small doses. It is, apparently, essential to health. Until now cod-liver oil was supposed to be the best available source. But the net work on ergosterol has opened up an entirely new source, and has, so to speak, brought the virtues of the summer sun within the reach of all at all seasons and in many different forms.

Vitamine D was at one time confused with Vitamine A, but, thanks to the work of students whom the Medical Research Council has assisted and encouraged, it has become possible to distinguish clearly between them. Vitamine A is not, in any sense, a "sunlight vitamin," nor does it exert influence on rickets. In its absence growth is stunted and certain troubles of the eye tend to develop. It has been discovered that the livers of cattle and sheep afford "ten times as much Vitamine A as good cod-liver oil." This discovery has made available a new and most satisfactory source of food factor of immense value.

"There can," says the report, "be no reasonable doubt, from all the evidence now available, that the great majority of our population are suffering from a deficiency in these essential parts of food (Vitamins A and D). The cost of this deficiency in human suffering and economic loss is incalculable, but certainly vast. The urgently pressing task of removing these evils, which has long confronted medical administration, is lightened and simplified by the newly gained knowledge now available."

Pointing out that the total supply of milk fat was inadequate for the minimal needs of the population, the report adds: "The place of butter cannot be supplied by margarine so long as that is itself deficient in vitamins. The crucial problem, however, for this and other countries—though probably in no

other country is the nutritional need more pressing than at present in this—is not now, therefore, the hopeless problem offered by the apparently inevitable shortage of milk fat; it is the problem of the supply of fat-soluble vitamins, and this, in the light of the discoveries just described, can now be cheerfully faced.

“Our national needs of vitamin ‘A’ can be met by the addition of vitamin ‘A’ from liver fat to the diet, either with butter, or with margarine, or in other ways. The home supply is readily supplemented, if necessary, by Empire produce, and it has been found already that the vitamin content of fat from imported New Zealand liver is the same as that from the liver of home-killed animals. It will be noted that these fats extracted from liver are wholly free from the unpleasant flavour of fish oils, and the low melting points of liver fats greatly aid their easy incorporation with other fatty food materials.”—Abstract from *The Dental Record*.

Inspiration-Getting

“ACH should expose himself to inspiration at every opportunity and then do his work while under its spell.

“How may one thus expose himself—by choosing the best in every contact in life with an open mind for help.

“Everyone must locate for himself his sources of inspiration. What will inspire one will pass unnoticed by a hundred. One’s mental trap must be constantly set to catch his own inspirational hare. Nobody else can select it for him for no one else can know his particular needs.

“A desire to improve is the finest trap for catching inspiration, and an ever receptive spirit is the surest bait.

“A thousand people may hear a lecture and one man is inspired to deeds which enrich by a trifle the whole world. Why did not the nine hundred and ninety-nine get the same view as the one who is inspired to do something? Nobody knows. Theories may be evolved, but as yet no one can set up in advance of the fact what the outcome will be in any particular case.

“Our schools, churches, and educational and scientific societies are doing all they can to tell us how and why, but the enigma of it still remains.”

PUBLIC EDUCATION

DENTAL HEALTH

"The public has decided it wants health talk and means to get it! The lay press is the most powerful medium of instruction for the public in health matters. We must do our best to secure its co-operation!"—Sir Thomas Horder.

IN this department each month will be published short articles suitable for use in the public press. The material has been authorized by the Oral Hygiene Committee of the Ontario Dental Association, and members of the profession may feel free to arrange for its publication in the local papers or magazines.

TAKING GAS.



PERHAPS you have a nervous dread of the hypodermic needle, and also shrink from having your tooth "frozen"—preferring to take gas instead.

By "gas", we imply a mixture of nitrous oxide and oxygen, administered in proportions varied to suite the type of patient at hand.

Formerly, nitrous oxide gas was administered alone, but oxygen was later introduced for the purpose of better control. Because of this, nitrous oxide-oxygen anæsthesia is considered to be the safest of all general anæsthetic agents.

The action of "gas" is fairly rapid, the normal period of induction being one minute and forty seconds, at which time unconsciousness should be induced. The duration of the anæsthesia may be prolonged or shortened as required, by means of the oxygen control.

The period of recovery is brief, it being brought about by shutting off the nitrous oxide flow and giving oxygen, when the patient is quickly restored to consciousness. Very rarely does the patient exhibit symptoms of nausea or prolonged muscular weakness following the recovery.

The best time for administration of a gas anæsthetic is in the morning or early afternoon, when one is fresh and rested. But no general anæsthetic should be given within from two to three hours of eating; hence the meal prior to the time of operation should be omitted.

As with other general anæsthetic agents, the best results are obtained with those who approach in proper attitude of mind, with fears allayed and fully confident that in no way will they be subjected to any unpleasant sensations.

With extractions, one marked advantage of a general

anæsthetic over a local agent, is that where the general anæsthetic is employed there is a freer hemorrhage in the tooth socket, consequently the risk of infection subsequent to the operation is much less, and the liability of after soreness is very much reduced.

* * *

TOOTH EXTRACTION.



YOU examine a tooth following its extraction, and you wonder just why it was so hard to pull.

And also, being just bony tissue, as it seems, you cannot see how it could hurt quite as much as it did.

But the tooth is not simply bone tissue encased in bone, for, between the two there is a soft tissue lining called the pericementum. It is into this tissue that are attached the myriads of tiny fibres which hold the tooth in place.

Now you will remember how, in "Gulliver's Travels", the Lilliputian chains were like so many fragile strands of thread, yet together, in their thousands, they sufficed to hold Gulliver securely to the ground. So when a tooth is "drawn", these countless fibres have to be literally torn across, requiring a great expenditure of force; with this rending, they "cry loudly", causing pain.

Remember, too, that in the single rooted teeth there is oft-times a bulbous portion on the root, while with the multi-rooted teeth these roots are generally spreading and not infrequently crooked, all of which make for their stability in the bony jaw.

So that in extraction the problem presents of forcing these enlarged and spreading or crooked roots through the narrow aperture of the supporting bone, which snugly fits the tooth neck.

Where the alveolus is light, this is fairly easy of accomplishment, through springing apart the alveolar "plates", but where the bone is thick and dense, or the roots unduly spread or crooked, greater difficulty is met. In such cases, the difficulties are overcome through resorting to other methods of extraction.

But, of course, it does seem but a simple matter to have a tooth pulled, doesn't it?

Yet, it must not be forgotten that every extraction, no matter how apparently simple, is a surgical operation, wherein the body tissues are exposed to infection with its grave consequences to health and life, and hence, tooth extraction should not to be too lightly regarded.

GINGIVITIS.



MEANING what?—*itis*—a suffix, implying inflammation, and *gingiva*—the soft tissue immediately encircling the tooth.

This, then, is an inflammatory condition of the gum tissue adjoining the teeth.

Consult your mirror! Notice how snugly these tissues hug the tooth surfaces in health, filling the interstices and guarding the supporting structures from injury and disease.

Now you will have observed that the gingivæ are not attached to the tooth surfaces for a short distance down, and hence, are “free”; also, that their colour in health is a lustrous pink.

But the inflammation appearing, you have a rush of blood to the area involved, and the gingivæ become red and “inflamed”, later turning bluish from the congested venous blood within—and soreness develops, so that you readily perceive that they are far from the state of health.

Now, what might cause this?

It may be that some body disturbance is accountable. General ill-health, diseases of organs or glands concerned in body welfare, such as diabetes, or run-down nervous system, may lead to this disorder.

Among the more positive causes, filth and tartar no doubt play a part; the wedging of food between teeth with faulty contacts, injury from misuse of the tooth-pick or of dental floss, faulty occlusion, and disease producing organisms, are all held responsible.

If, for any reason, there is a slight opening between two teeth, food which is tough and stringy will be crowded into the space and cause pressure upon the underlying tissue. A single such occurrence may do but little harm, provided the food is promptly removed, but where there is this repeated pressure and irritation, the tissue is inflamed much of the time. Similarly the crowding of “tartar” upon these tissues, or repeated injuries from whatever source, will set up this process.

It is in these gingival tissues, then, that the initial injury many occur which, if neglected, frequently leads to the infective process known as pyorrhœa. So that any inflammatory condition or tenderness of the gums should receive early recognition, and have prompt remedial treatment at the hands of your dentist.



British Columbia—W. J. BRUCE,
D.D.S., 404 Birks Bldg., Van-
couver.

Alberta—JOHN W. CLAY, D.D.S.,
914 Herald Bldg, Calgary.

Saskatchewan — O. W. PARKER,
D.D.S., Imperial Bank Bldg.,
Regina.

Manitoba—W. W. WRIGHT, D.D.S.,
767 Warsaw Ave., Winnipeg.

Maritime Provinces—J. STANLEY BAGNALL, D.D.S., 34 Larch Street,
Halifax, N.S.

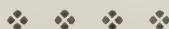
Ontario—LIEUT-COL W. G. THOMP-
SON, 46 Sun Life Bldg., Hamil-
ton.

STANLEY G. McCAUGHEY, D.D.S.,
384 McLaren St., Ottawa.

Quebec—M. L. DONIGAN, D.D.S.,
1396 St. Catherine St. W.

PAUL GEOFFRION, D.D.S., 308
Sherbrooke Street, Montreal.

*Provincial Editors will appreciate receiving from all local societies copies of
papers, society proceedings or personal notes, for publication.*



QUEBEC.

THE MONTREAL DENTAL CLUB.



THE annual meeting of the Montreal Dental Club
was held in the Mount Royal Hotel, on April 26th.

The members were requested to submit questions
and problems arising in their practice, to the chair-
man, Dr. F. H. Baxter, who then called on various members
to answer them. Several very interesting discussions were
heard.

Re- election of officers took place with the following results:

President, Dr. A. L. Walsh.

Vice-President, Dr. H. R. Cleveland.

Secretary-Treasurer, Dr. D. D. MacDonald.

Asst. Secretary-Treas., Dr. M. L. Donigan.

It was decided to again hold the Montreal Fall Clinic this
year.



The annual meeting of the Montreal Dental Assistants' As-
sociation was held on April 16th. The reports of the president
and secretary were read and adopted. A vote of thanks was
expressed to all those who had given lectures or clinics during
the preceding year.

The following officers were elected for the ensuing year:—

Miss R. Firth—President.

Miss E. Moye—Vice-President.

Miss E. Voysey—Secretary.

Miss M. McClean—Treasurer.

M.L.D.

MANITOBA.



THE Winnipeg Dental Society concluded its winter programme on Monday, April 2nd, 1928, by having Dr. Switzer, of the University of Toronto, as their guest for two days, and by the election of officers for the following season. The number present at the chair clinic of Dr. Switzer was disappointing, but a good turnout enjoyed the evening session. The Society presented Dr. Switzer with a watch, as a token of appreciation for his visit. The following officers were elected for the 1928-9 season: President, K. M. Johnson; Vice-President, H. Hodgson; Sec'y.-Treas., W. J. Riley; Executive Committee, J. W. McLeod and A. E. Proctor.

* * *

Considerable interest has been displayed by Winnipeg dentists in the course given by Mr. E. C. Cameron, of St. Paul, on Dental Economics and Practise Building. Last November a class took the course and this spring two more classes were organized, totalling thirty dentists. These dentists have since organized a study group, with J. M. Graham as President and Reeve Morrison as Secretary-Treasurer. This is not the first special course of this nature that the writer has taken and feels that, while Mr. Cameron might consider some other angles of the question were he a dentist, yet he is a great student of psychology, with wide opportunities as a layman to observe dentists and to teach and inspire them to greater efforts for better service and better returns. His material is splendidly presented, his principles and ethics are honourable and fair. The writer is not an advance agent for anybody, but knows many dentists are just naturally wondering about his credentials.

* * *

Dr. J. F. Morrison, of Winnipeg and E. H. Clark, of Minnedosa, were named as delegates, with power to vote Manitoba into the proposed new constitution of the Canadian Dental Association.

* * *

Dr. D. A. McCarten, of Winnipeg, was elected to the Board of Directors of the Manitoba Dental Association. The Board now consists of:—H. J. Merkeley, President; E. H. Clark, Vice-President; J. F. Morrison, Secretary; W. W.

ORAL HEALTH for May, 1928

Wright, Registrar-Treasurer; H. A. Croll, Representative to Dominion Dental Council, and D. A. McCarten.

* * *

An energetic golf committee, under the chairmanship of W. J. Robb, is aiming at 100 dentists taking part in the dental golf tournaments.

* * *

Mr. "Ted" Sinclair, who resigned as manager of Winnipeg branch of the Ash-Temple Co., in order to take a partnership in a business in Vancouver, was the recipient of a very generous presentation from many Winnipeg dentists. Ted's many friends wish him success in his new venture.

* * *

Mr. Comfort, of the Ash-Temple Co., Montreal, has been transferred to Winnipeg as manager of the Winnipeg branch and supervisor of Western branches. In coming to Winnipeg, Mr. Comfort returns to old friends who appreciate him and are glad to see him promoted to such high standing in his company.

* * *

Dr. Manly Bomles recently addressed the Winnipeg Rotary Club.

* * *

The Educational Committee of the Manitoba Dental Association is certainly doing a lot of hard work under the chairmanship of Fred Jackson and their active secretary, Basil Brownlee. There have been regular articles in the *Saturday Free Press*, radio lectures, special lectures, moving pictures, material prepared for the Health League Exhibit and many other things attended to, that are a great credit to this committee. They also arranged for Dr. Harry Thompson to address certain officials of the Provincial Government and the Winnipeg School Board, a meeting which has resulted in immediate good, as evidenced by a much more kindly attitude to suggestions from the committee.

* * *

Dr. Russell Tweed has returned from a motor trip to Texas, Florida and California. He left Winnipeg by motor on Jan. 5th, travelling 9,000 miles during the two and one half months he was absent.

W. W. W.

Officers of Canadian Dental Organizations

*Oral Health will be pleased to Receive Additions or Corrections that
Directory of Names May be Kept as Accurate as Possible.*



CANADIAN DENTAL ASSOCIATION

President: Dr. John Clay, Calgary, Alta.
Secretary: Dr. J. Stanley Bagnall, 34 Larch St., Halifax, N.S.

DOMINION DENTAL COUNCIL OF CANADA

President: Dr. George Kerr Thomson, Halifax, N.S.
Secretary: Dr. W. D. Cowan, Regina, Sask.

CANADIAN DENTAL HYGIENE COUNCIL

President: Hon. S. C. Mewburn, K.C., Hamilton.
Secretary: Dr. E. A. Grant, Toronto.

CANADIAN DENTAL RESEARCH FOUNDATION

President: Dr. R. Gordon McLean, Toronto.
Secretary: Dr. E. A. Grant, Toronto.

THE DENTAL SOCIETY OF WESTERN CANADA

President: Dr. Geo. L. Cameron, Swift Current, Sask.
Secretary: Dr. C. W. Parker, Regina, Sask.

PROVINCIAL AND LOCAL DENTAL ASSOCIATIONS.

BRITISH COLUMBIA

British Columbia Dental Association.

Pres.: Dr. F. T. Coghlan, Vancouver.
Sec.: Dr. Fraser Allen, Vancouver.

Vancouver Dental Society.

Pres.: Dr. J. Frank Hill.
Sec.-Treas.: Dr. H. M. Cline.

Victoria Dental Society.

Pres.: Dr. J. C. Foote.
Sec.: Dr. S. Youlden.

ALBERTA

Alberta Dental Association.

Pres.: Dr. H. L. Coursier, Wainwright.
Vice Pres.: Dr. M. L. Moore.
Sec. & Reg.: Dr. A. B. Mason, Edmonton

Calgary Dental Society.

Pres.: Dr. A. C. Steeves.
Sec.-Treas.: Dr. B. J. Charles.

Edmonton Dental Society.

Pres.: Dr. Robt. Decker.
Vice Pres.: Dr. Alex. Gomeroy.
Sec.: Dr. W. Scott Hamilton.

Lethbridge Dental Association.

Pres.: Dr. J. S. Stewart.
Sec.-Treas.: Dr. M. J. Gibson.

SASKATCHEWAN

Saskatchewan Dental Association.

Pres.: Dr. A. J. Brett, Regina, Sask.
Sec.: Dr. Irwin Robb, Regina, Sask.

Saskatoon Dental Society

Pres.: Dr. Lee Steeves.
Sec.-Treas.: Dr. Robt. A. Newlove.

Moose Jaw Dental Society.

Pres.: Dr. R. H. McDougall.
Sec.-Treas.: Dr. E. J. Hill.

Regina Dental Society.

Pres.: Dr. W. J. Mooney.
Sec.-Treas.: Dr. W. M. Blair.

MANITOBA

Manitoba Dental Association.

Pres.: Dr. H. J. Merkeley, Winnipeg
Sec.: Dr. J. F. Morrison, Winnipeg.

Winnipeg Dental Society.

Pres.: Dr. B. E. Brownlee.
Sec.-Treas.: Dr. Ben. Toombs.

ONTARIO

Academy of Dentistry, Hamilton.

Pres.: Dr. J. N. Stewart.
Sec.: Dr. L. A. Kilburn.

Academy of Dentistry, Toronto.

Pres.: Dr. S. Woollatt.
Sec.: Dr. A. Hord.

Bay of Quinte Dental Society.

Pres.: Dr. F. T. Knight, Picton.
Sec.: Dr. C. E. Wright, Picton.

Brant Dental Society.

Pres.: Dr. W. Hart, Brantford.
Sec.: Dr. L. E. Riddolls, Brantford.

Cornwall Dental Association.

Pres.: Dr. J. V. Lally.
Sec.-Treas.: Dr. H. W. Weagant.

Eastern Ontario Dental Society.

Pres.: Dr. S. G. McGaughey, Ottawa
Sec.: Dr. D. C. W. Coupland, Ottawa

Elgin Dental Association.

Pres.: Dr. W. J. Riseborough, S. Thomas
Sec.: Dr. G. T. Mitton, St. Thomas.

Essex County Dental Association.

Pres.: Dr. A. Johnston, Windsor.
Sec.: Dr. O. C. Baker, Windsor.

Grey County Dental Society.

Pres.: Dr. C. Marshall, Owen Sound.
Sec.: Dr. J. W. Tackaberry,
Owen Sound.

Huron County Dental Society.

Pres.: Dr. G. F. Roulston, Exeter.
Sec.: Dr. F. J. Bechely, Seaforth.

Kingston Dental Association.

Pres.: Dr. A. W. Winnett.
Sec.: Dr. T. H. Renton.

ORAL HEALTH for May, 1928

PROVINCIAL AND LOCAL DENTAL ASSOCIATIONS—Continued.

Lambton County Dental Society
Pres.: Dr. W. A. Hartley, Sarnia.
Sec.: Dr. E. A. Storey, Sarnia.

London Dental Society.
Pres.: Dr. J. F. Giffen.
Sec.: Dr. S. R. Moore.

Niagara Falls Dental Society.
Pres.: Dr. L. C. Jones.
Sec.: Dr. C. A. Tanton.

North Bay Dental Society.
Pres.: Dr. B. F. Nott.
Sec.-Treas.: Dr. L. H. McCool.

North Temiskaming Dental Association.
Pres.: Dr. G. Mitchell Timmins.
Sec.: Dr. S. L. Honey, Timmins.

North Waterloo Co. Dental Association
Sec.-Tr.: Dr. J. A. Spellman, Kitchener

Ontario Dental Association.
Pres.: Dr. A. E. Webster, Toronto.
Sec.: Dr. F. J. Conboy, Toronto

Ontario and Durham Dental Society.
Pres.: Dr. F. L. Henry, Oshawa.
Sec.: Dr. B. B. Beaton, Whitby.

Orthodontic Club of Toronto.
Pres.: Dr. H. G. Bean.
Sec.-Treas.: Dr. S. S. Crouch.

Ottawa Dental Society.
Pres.: Dr. Lorne E. MacLachlan.
Sec.: Dr. Ira W. Hamilton.

Peterborough Dental Society.
Pres.: Dr. Harold Long.
Sec.: Dr. N. W. Hayes.

St. Catharines and District Dental Ass'n.
Pres.: Dr. C. R. Davis, St. Catharines.
Sec.: Dr. J. M. Shultis, St. Catharines.

Sault Ste. Marie Dental Society.
Pres.: Dr. G. W. Bald.
Sec.-Treas.: Dr. W. M. MacKay.

Simcoe County Dental Society.
Pres.: Dr. W. M. Seymour, Orillia.
Sec.: J. B. King, Penetang.

South Temiskaming Dental Association.
Pres.: W. J. Fuller, New Liskeard.
Sec.-Trs.: W. R. Jackson, Englehart.

Stratford Dental Society.
Pres.: Dr. D. R. Nethercott, Stratford.
Sec.:

Sudbury Dental Society.
Pres.: Dr. J. C. Fraser, Sudbury.
Sec.: Dr. J. S. Miller, Sudbury.

Thunder Bay Dental Association.
Pres.: W. D. Ramore, Port Arthur.
Sec.: Dr. M. P. Benger, Port Arthur.

Wellington County Dental Society.
Sec.: Dr. E. S. Burrows, Guelph.

QUEBEC

Montreal Dental Club.
Pres.: Dr. D. P. Mowry, Montreal.
Sec.: Dr. A. D. Crowe, Montreal.

Mount Royal Dental Society.
Pres.: Dr. I. N. Pesner, Montreal.
Sec.: Dr. L. S. Eidinger, Montreal.

Quebec Dental Association.
Pres.: Dr. E. Charron, Montreal, Que.
Sec.: Dr. Denis Forest, Montreal, Que.

Société Dentaire de Montreal.
Pres.: Dr. J. A. Pinault.
Sec.: Dr. Paul Geoffrion.

NEW BRUNSWICK

Moncton Dental Society..
Pres.: Dr. J. A. Le Blanc.
Sec.: Dr. A. H. Le Blanc.

New Brunswick Dental Association.
Pres.: Dr. J. Kerr Higgins, St. John.
Sec.: Dr. F. A. Godsoe, St. John, N.B.

St. John Dental Society.
Pres.: Dr. J. E. Edcombe.
Sec.: Dr. Frank Poyaner.

NOVA SCOTIA

Cape Breton Dental Society
Pres.: Dr. J. P. Parker, Sydney.
Sec.: Dr. J. T. Lebbetter, Sydney.

Dental Association of Nova Scotia.
Pres.: Dr. T. Melanson, Yarmouth.
Sec.: Dr. G. R. Hennigar, Halifax.

Halifax Dental Society.
Pres.: Dr. F. W. Johnson.
Sec.-Treas.: Dr. G. A. Chudleigh.

Western Counties Dental Association
Pres.: Dr. H. O. Harding, Yarmouth.
Sec.: Dr. V. G. Turnbull, Digby.

PRINCE EDWARD ISLAND

Prince Edward Island Dental Assoc'n.
Pres.: Dr. T. E. E. Robins, Charlottetown
Sec.-Treas.-Reg'r: Dr. J. S. Bagnall
Charlottetown

REGISTRARS OF PROVINCIAL DENTAL BOARDS.

Prince Edward Island.

Dr. J. S. Bagnall, Sec.-Treas., P. E.
Island Dental Association, Char-
lottetown, P.E.I.

Nova Scotia.

Dr. A. W. Faulkner, Registrar, Nova
Scotia Dental Board, 69 Gottingen
St., Halifax, Nova Scotia.

New Brunswick.

Dr. Frank A. Godsoe, Registrar,
Council of Dental Surgeons, St.
John, N.B.

Newfoundland.

Dr. W. T. Rea, Sec.-Registrar, New-
foundland Dental Board, St.
Johns, Nfld.

Quebec.

Dr. D. Forest, Registrar, Quebec
Dental Board, 187 de la Roche St.
Montreal, Quebec

Ontario.

Dr. W. E. Willmott, Sec.-Treas.,
Royal College of Dental Surgeons
of Ontario, 240 College St., Toronto.

Manitoba.

Dr. W. W. Wright, Registrar, Mani-
toba Dental Association, 767
Warsaw Ave., Winnipeg, Man.

Saskatchewan.

Dr. L. J. D. Fasken, Registrar, Sas-
katchewan College of Dental Sur-
geons, Regina, Saskatchewan.

Alberta.

Dr. Leslie McIntyre, Registrar, Al-
berta Dental Association, Edmon-
ton, Alberta.

British Columbia.

Dr. W. J. Lea, Registrar, College of
Dental Surgeons of B. C., Van-
couver, B.C.



This Department is Edited by
C. A. KENNEDY, D.D.S.,
86 Bloor St. West, Toronto.



REMOVAL OF SILVER NITRATE STAINS ON TEETH.—Apply iodine, changing the nitrate into iodine of silver; then apply ammonia, leaving the tooth stainless.

IN USING STEELE'S POSTERIOIRS it will be found advantageous to solder a piece of 36-gauge gold to the backing and burnish same to fit the ridge lap. This adds strength, as solder can thus be carried to the cervical end of the tooth.

DANGER OF RETENTION OF INFECTED DECIDUOUS TEETH.—No enlightened dentist of to-day advises an adult to retain a badly abscessed first molar merely because the loss of the first molar will cause the second molar and bicuspid to tip and upset the balance of normal occlusion. The health of the individual is considered of greater importance than the deformity which will result because of the loss of the tooth. The same knowledge of focal infection should be applied to a child with an infected tooth. General health is of the greatest importance, and if deciduous teeth become infected and cannot be put in a healthy condition, they should be extracted. A child, on account of its lack of years, has not built up an immunity in its system to the different forms of infection, and is less able to combat infection than is the adult.—MARION R. STEVES, B.A., D.D.S., in *The Dental Cosmos*.

TO MAKE AN INLAY FIT.—Prepare the cavity so the wax will draw easily. Use any kind of casting wax, any kind of investment, any kind of wax elimination, any kind of gold, and any kind of casting machine, *but* from the time the wax pattern is removed from the mouth, maintain everything at a temperature of 110 degrees to 115 degrees Fahrenheit. The pattern, the water for the mix, the investment, the ring, must all be kept at this temperature, until the case is heated for casting. This is in accord with the latest investigation in regard to accuracy in casting.

Obituary

DR. C. EDMUND KELLS.



THE members of the Dental Profession throughout the world will mourn the passing of Dr. Kells on the afternoon of May 7th, 1928, at his home in New Orleans.

Dr. Kells was in his seventy-second year and succeeded his father who was one of the early pioneers in Dentistry. He was graduated from the New York Dental College in 1878, thus he completed fifty years of dental practice.

Possibly no book in recent years in Dentistry has created more interest than Dr. Kells' recent volume, "Three Score Years and Nine," which was dedicated to "All Members of our Beloved Profession who Stand for the Best There is in Dentistry and Especially to Those Good Friends Who Bid Me Hope When All Looked Hopeless". Dr. Kells had in mind doubtless his own physical condition which resulted from his early experimental work with the x-ray long before the operator was protected, or indeed there was any thought of serious pathological conditions following prolonged exposure to the rays. As a result of this condition it was found necessary to amputate an arm, but notwithstanding this disability he continued to practice and maintain his wonderfully cheerful and optimistic outlook upon life.

One of Dr. Kells' favourite verses was the following:

"Yesterday and its mistakes are history,
Forget them not.
To-morrow is a mirage—is always afar,
Count not upon it,
To-day—this glorious day—is here, is yours.
Make the most of it."

He was beloved by all, even those with whom he strongly differed. His attitude was always exemplified by the Chinese proverb, "Think of your own faults the first part of the night when you are awake, and the faults of others the last part of the night when you are asleep."

The late Dr. Kells was not only a successful dentist and author but also an inventor. It was he who invented the first dental electric engine driven by street current, introduced com-

pressed air into dental offices, took first dental skiagraphs and first stereographs, gave first x-ray dental clinic and originated diagnostic wire in root canal work.

One of the great outstanding personalities has been removed from the dental world, and nothing remains for us but to emulate his example and extend to Mrs. Kells, the other members of his family and his close personal friends, sincere sympathy in their great loss.

WALLACE SECCOMBE.

* * *

DR. W. C. BROWN, PRESCOTT.



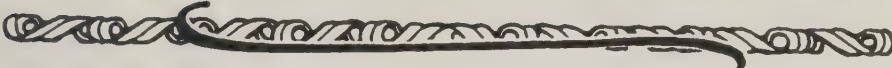
THE Town of Prescott sustained a distinct loss in the death of Dr. W. C. Brown, collector of National Revenue, at the port of Prescott, which occurred on Sunday, April 8, 1928, at the Hepburn Hospital, Ogdensburg, N.Y., after an illness of ten weeks. The late William Charles Brown was born in South Gower, in 1869, a son of the late Mr. and Mrs. John S. Brown. He was a graduate of R.C.D.S., 1895, and practised dentistry up to the time he was appointed Collector of Customs at this port in 1910. He was one of the town's most prominent and highly esteemed citizens and was deeply interested in its welfare. He was a member of St. Paul's United Church, and, in politics, a staunch Liberal. He was widely known in fraternal circles, being a member of Central Lodge No. 110, A.F. and A.M., Amity Lodge, No. 80, I.O.O.F., and the Royal Arcanum. In 1900 he was married to Mary Kate Plumb, daughter of the late Capt. Isaac Plumb, who survives, with three children, Elva Mary, Helen and Charles Lindsay, all of Prescott, one sister, Mrs. (Rev.) S. A. Woods, of Markham, Ont., and one brother, Lindsay O. Brown, Britannia Heights, Ottawa. The funeral was held under Masonic auspices at St. Paul's United Church, Prescott, Tuesday, April 10. Burial at Sandy Hill cemetery.

L. B. NUTTALL.

Idealists

“OW often do we hear the expression, uttered with a slight tinge of contempt, Oh he's an idealist! Just as if that mere not about the finest thing thaht could be said of anyone.”

Oral Health



Vol. 18

TORONTO, MAY, 1928

No. 5

EDITOR:

WALLACE SECCOMBE, D.D.S., F.A.C.D., Toronto, Ont.

CONTRIBUTING EDITORS:

C. N. JOHNSON, M.A., D.D.S., F.A.C.D., Chicago.

W. E. CUMMER, D.D.S., F.A.C.D., Toronto.

Entered as Second-Class Matter at the Post Office Department,
Ottawa.

Subscription Price, Canada and United States, two dollars per annum; elsewhere three dollars. Single Copies 25c. Free distribution to all members of the Dental Profession practising within the Dominion of Canada and Newfoundland.

Original Communications, Book Reviews, Exchanges, Society Reports, Personal Items and other Correspondence should be addressed to the Editor Oral Health, 102 Wells Hill Avenue, Toronto, 10, Canada.

Subscriptions and all business Communications should be addressed to The Publishers, Oral Health, Royal Bank Building, 269 College St., Toronto, 2, Can.

EDITORIAL

Dentistry and the Press



UNDER the caption "Dental Health," the following paragraphs appeared in an editorial in a recent issue of *The Hamilton Spectator*:

"The importance of oral hygiene is recognized by all. Diseased teeth mean poor health generally, and neglect is bound to be followed by trouble more or less serious. It is to the credit and honour of the dental profession that its members have shown a willing disposition to give their services unstintedly to the public, and especially to the young.

"The rising generation will not suffer from the handicaps which ignorance and indifference imposed upon their parents, for the work of education and the active steps which have been taken, through the schools and public health departments, to

arouse parents and children to a sense of the dangers of neglect, are having their effect and conditions have been considerably improved. This betterment has been brought about, however, through the public-spirited action of the profession and those concerned with the welfare of the community. The time has come for the Government to take cognizance of this splendid work and come forward with much-needed financial assistance."

The Editor, Mr. William Mulliss, has always shown a keen personal interest in public welfare and particularly in the dental phases of the public health problem. Upon many occasions he has assisted the Hamilton Academy of Dentistry, the Ontario Dental Association, the Provincial Department of Health and other similar bodies in presenting to the public useful information in relation to dental health and in the organization of school and hospital dental clinics for the poor.

The daily press is a powerful influence in modern society and is particularly valuable as an educative force in the furtherance of good health. Newspaper Associations in Canada have at times officially discouraged the assignment of reading space to the subject of Oral Hygiene upon the assumption that such instruction was calculated to increase private dental practice and therefore should be treated as advertising copy and paid for by the dentists. Such an attitude overlooks entirely the urgent public need for such information and the fact that dental health is an important phase of the larger problem of general health.

Mr. Mulliss has always seemed to have a clear understanding of the aims of the dental profession and an appreciation of the desire of its members to contribute to the health of the people through dental health service.

It would be fitting that during the joint convention of the Canadian and Ontario Dental Associations, to be held in Toronto next month, Mr. Mulliss' sustained interest in the work of the dental profession be recognized by formal vote of thanks of the members for his many years of helpful and public-spirited co-operation.

BURNS FROM ACIDS.—If from carbolic acid, apply absolute alcohol at once; if from hydrofluoric acid, apply a strong solution of bicarbonate of soda. Never use these acids without having at hand some agent to stop their action immediately, in case of accident.

211

IT is not in a man's creed but in his deeds, not in his knowledge but in his wisdom, not in his power but in his sympathy, that there lies the essence of what is good and what will last in human life.—*F. Yorke Powell.*



R. E. SPARKS, *D.D.S., M.D.*,
Kingston, Ontario.

ORAL HEALTH

*A JOURNAL THAT STANDS FOR THE "OUNCE OF
PREVENTION" AS WELL AS THE "POUND OF CURE"*



Vol. 18

TORONTO, JUNE, 1928

No. 6

Oral Focal Infection and Its Relation to Systemic Diseases*

EMERY JONES, D.D.S., NEW WESTMINSTER, B.C.



THE relation of focal infection to ill health has been known to some extent for centuries. An article published in Philadelphia in 1818 (a century ago) —by Benjamin Rush, one of America's foremost physicians of that day, is worth quoting. This article was written before the discovery of bacteria, at a time when the knowledge of pathology was very meagre, and yet it harmonizes in its essentials with the more popular views of the present day.

"MEDICAL OBSERVATIONS" BY BENJAMIN RUSH, M.D.,
PROFESSOR OF THE UNIVERSITY OF PENNSYLVANIA.

"Some time in the month of October, 1801, I attended Miss A. C. with rheumatism of the hip joint, which yielded for a while to the several remedies for that disease. In the month of November it returned with great violence, accompanied with a severe toothache. Suspecting the rheumatic affection was excited by the pain in her tooth, which was decayed, I directed it to be extracted. The rheumatism immediately left her hip, and she recovered in a few days. She has continued ever since to be free of it." He mentions two other cases—one of epilepsy, the other of dyspepsia and then concludes as follows, "I have been made happy by discovering that I have only added to the observations of other physicians, in pointing out a connection between the extraction of diseased teeth and the cure of general diseases."

*Read before the combined meeting of the Victoria Medical Association and the Victoria Dental Society at Victoria, B.C., 1928.

But it is only during the last twenty years that this subject has had the attention that it deserves.

The greatest service a paper of this kind can give is to review and analyze the evidence now existing regarding pulpless and infected teeth and the surrounding tissues of the oral cavity. I have no laboratory findings of my own, so I give you the consensus of opinion of those that have had that opportunity, where those findings are borne out by the clinical findings of myself and other practical men.

A focus of infection may be defined as a circumscribed area of tissue infected with pathogenic micro-organisms. Foci of infection may be primary and secondary. Primary foci usually are located in tissues communicating with a mucous or cutaneous surface. Secondary foci are the direct results of infection from other foci through contiguous tissues, or at a distance through the blood stream or lymph channels.

Primary foci of infection may be located anywhere in the body. Infection of the teeth and jaws, through pyorrhœa pockets or alveolar periapical infection (abscess), infection of the faucial and nasopharyngeal tonsils and of the mastoid and the maxillary and other accessory sinuses are the most common forms of focal infection, though there are many other common locations.

There are three distinct types of typical apical alveolar infection about the teeth; the acute; the chronic, with a sinus discharging through the mucosa or elsewhere; and the chronic without a sinus, usually called a blind abscess or granuloma and for convenience in this paper I will use these popular terms. But, I am quite aware of the use of faulty nomenclature. An abscess is a localized collection of pus in a cavity in the body. Blind apical infections are not usually purulent, in fact the ever present streptococcus viridans is not a pus producing organism (Billings). Granuloma is also a misnomer, for the granulation tissue about the apex of an infected tooth root is not a tumour in any sense of the word. First, let us answer the much asked question—

What evidence have we that oral focal infection may cause systemic disease? I will attempt to answer by quoting from some of our best research workers.

Frank Billings, M.D., with many of his colleagues in the Rush Medical College, affiliated with the University of Chicago, has made an exhaustive study, during the past fifteen

years, of the focal infection theory. These are some of his conclusions:

"Appendicitis is usually caused by a strain of the streptococcus group from a mouth or throat focus. Cholecystitis may also be caused by a streptococcus infection from a focus of the head."

✓ "The frequent relation of pyorrhea to rheumatic fever, heart disease, nephritis and other acute local and general infections has probably not been given the etiological importance it deserves."

"The primary focus of acute rheumatic fever, endocarditis, chorea, myosites, glomerulonephritis, peptic ulcer, appendicitis, and chronic deforming arthritis is usually located in the head, and usually in the form of alveolar abscesses, acute or chronic tonsillitis and sinusitis."

Dr. Charles Mayo has had long years of intensive study and an unusual opportunity for observation in the largest clinic in the world. He is quoted in the *Lancet*, June 13, 1925, as stating in a London address: "In America there has recently been a tremendous increase in heart disease and in infections, and post-mortem examinations seem to show that much of this is fundamentally due to the teeth." In a paper read at Dallas, Texas, Nov., 1924, he further states, "Sickness and death from acute chronic infections (those bacterially caused) account for 87 per cent. of all deaths."

He further states as follows, "The specific microbe of most diseases is known, and even if the microbes are unidentified we know their method of work, and can develop vaccines and serums to prevent, or limit, their destructiveness. The hardening of blood vessels; the changes in many chronic brain lesions; disseminated sclerosis of the spinal cord; chronic nephritis; stones in the kidney, ureter and bladder, the recurring rheumatism of muscles and joints, large and small; the chronic recurring diseases of the eye; iritis, retinal and choroidal troubles, and neuritis, are some of the more common diseases that we now know to be due to infections. Investigation has proved that those who suffer from such diseases carry a focus that, with varying degrees of health, exhaustion, or even climatic changes, may afford an opportunity for the bacteria to be thrown into the blood stream and create a recurrence of those diseases which, in the past, were treated as entities, primary, not secondary, as we now consider them. *The greater per-*

centage of such infective foci are in the mouth. Small, closed alveolar marginal pockets, abscesses at the roots of devitalized teeth all afford opportunities for infection, with the break in health that must eventually come to all. They may locate in the heart and thus add to the high, and still growing, death rate from heart disease; 150 deaths in 100,000 occurring from this cause each year in this country, usually without warning. Fortunate, indeed, are they who have the secondary foci in a nerve, as in neuritis, or in a muscle, as in muscular rheumatism, so that time and opportunity may be afforded for investigation.

Robert H. Buck, M.D., of Chicago, describes various eye diseases that may be attributed to infected teeth. He says, "Dental infections have been definitely shown to be etiologic factors in the inflammatory eye lesions and in obscure ocular diseases. Tonsillar infections are probably the most frequent cause of iritis. *Infected teeth rank as a close second*, while syphilis is relegated to third place."

No one on this Continent has done more work on Focal Infection than Edward C. Rosenow, M.D., of the Mayo Clinic of Rochester, Minn. He has proven the theory of elective localization of micro-organisms; he has shown that because of varying grades of oxygen pressure, streptococci, within a focus of infection, change their virulence and other properties, and acquire an elective affinity for certain tissues and organs, while streptococci, growing under aerobic conditions (e.g. on the membranes of the oral cavity), do not acquire these properties. *In animals*, depending on the strain he uses, he can produce appendicitis, cholecystitis, or ulcers of the stomach, almost at will, through the blood stream. by injecting intravenously certain strains of *streptococci from the teeth and tonsils*. But he has found it impossible to produce these diseases by swallowing the same strain of organisms.

B. S. Kline, M.D., and S. S. Berger, M.D., of Cleveland, Ohio, have made a careful study of pulmonary conditions and their conclusions, in speaking of *pulmonary gangrene*, follow: "Recent observations give evidence that this very serious, and usually fatal, disease of the lungs is produced by the presence of mouth spirochetes and fusiform bacilli and that its prevention is possible by proper oral hygienic or therapeutic measures."

Sir William Willcox and Dr. Beddard, of England, state:

"Ninety per cent. of the cases of non-specific infective arthritis are due to infections arising from the teeth."

In the Dental profession no man has had greater influence in moulding opinion than has Weston A. Price, D.D.S., of Cleveland, Ohio. He has been Chairman of the research section of the American Dental Association from 1914 to the present. For over twenty-five years he has carried on exhaustive experiments in his research Laboratories in Cleveland, and has written two text books of over 1,200 pages on *"Dental infections and the degenerative diseases."* In the famous Buckley-Price Debate in Chicago, two years ago, on the subject, "Resolved that practically all infected pulpless teeth should be extracted," the outline for the Affirmative was as follows: 1. *The present very high death rate from degenerative diseases is due in part to unwise treatment and retention of infected pulpless teeth.*

2. *It is so difficult, as to be practically impossible, to sterilize infected cementum in the mouth.*

3. *The new evidence from blood chemistry reveals that the toxic substances from infected teeth can, and do, destroy the body's normal defenses and these seriously disturb or destroy function.*

4. *I believe that "practically all infected pulpless teeth should be removed."*

Now, gentlemen, with this array of evidence from the best authorities, that oral facial infection does cause systemic disease, the next question we might naturally ask is: How does it cause those diseases?

Systemic infection from a primary focus is usually hematogenous. In addition to being carried in the blood stream the infectious micro-organisms may also pass from the focus to other tissues through the lymph channel and lymph nodes.

The most common microorganism found at the apices of infected teeth is streptococcus viridans. This organism, according to Rosenow, may be converted into any of the other types of the members of the streptococcus pneumococcus group. Let us take for example the streptococcus viridans endocarditis, a usually fatal disease. According to Frank Billings, "the focus of infection which undoubtedly causes the streptococcus viridans bacteremia and chronic malignant endocarditis is often alveolar abscess." "This disease is characterized by growths of massive vegetations upon the valves of the heart, but as the

organism is not a pus producing one, suppuration seldom follows. And so with other diseases, it is a short journey through the blood stream from the oral cavity to the most remote parts of the body."

Since the above research workers have seemed to prove that many serious and fatal diseases are traced to the foci of infection in the oral cavity, let us next carefully analyze whether there is any weak link in their chain of evidence or if we have sufficient data for our diagnosis of the cause of these systemic diseases. The correct diagnosis of the cause of such serious and often fatal diseases as have been mentioned is so mighty important that we must take great care that the diagnosis is absolutely sure. Then let us analyze our present methods. One of the most useful and most depended on assistant in diagnosis is the Roentgen ray.

Five years ago the pendulum swung far over, as it often does, when a new theory has been proven. Many Physicians and Dentists went to the extreme of advising the removal of every devitalized tooth, and every tooth with a large filling or with a gold crown. Then a little more conservatism followed and those teeth only were condemned that showed a rarefied area about the apices, or that had an exudation of pus (or finely dessicated food) from the gingivæ, under pressure of the finger. Of more recent date Hayden has proven, I. A very high percentage of teeth that are negative with the roentgen ray test, harbour infection. II. A fairly high percentage of teeth that are positive to the same test did not harbour any infection, or not sufficient infection to be a factor in systemic disease at the time the culture was made. In such cases the infection has probably run its course and become bacteria free, as happened in infections elsewhere in the body.

Dr. Rosenow also confirms the same idea in these words, "The Roentgen-ray negative tooth may harbour streptococci that have a higher degree of specific invasive power than those isolated from pulpless teeth in which marked rarefaction is apparent." Of course, we all know that the typical walled off granuloma is less dangerous than the diffusing type.

Weston A. Price sums up the limits of the Roentgen-ray as follows: 1. Roentgenograms do not reveal infection, and may, or may not, reveal its efforts. 2. The extent of the absorption of the supporting tissue at the apex of a tooth, or laterally to it, may not be disclosed because of any of the

following conditions (a) being hidden by another root of the same tooth, (b) a heavy mass of bone such as the molar bone, (c) a layer of condensing osteitis obscuring the rarefying osteitis.

Since there are so many possibilities in the taking and interpretation of these pictures it is absolutely essential that the technician be familiar with dental anatomy, dental pathology and dental operative procedure, and this naturally eliminates the using of the commercial "X-Ray Laboratory" unless the dentist were present to note the angles at which the rays were directed upon the film.

Even with this precaution we must regard the limitations of the interpretations of the roentgen ray as *the first weak link in the radical removal of all devitalized teeth.*

Another help has been used by several workers, including Russel Haden, M.D., viz., the differential leucocyte count in periapical dental infection. A study of leucocytes of the blood would seem to be a very promising method of approach, since the white corpuscles may respond quite rapidly when bacteria or products of bacterial activity are absorbed by the blood.

Let us analyze what these research workers find:—

Heckar states that he has observed tinctorial changes in the leucocytes in the presence of dental infection. (1) Logan leucocytosis in 47 out of 52 cases of periapical infection. (2) Goadby thinks that there is constantly an increase in mononuclears in pyorrhea and systemic disease. (3) Daland concludes that "small cell lymphocytosis with a corresponding decrease in the polymorphonuclear cells is an important diagnostic sign of periapical dental infection, the value of which is increased when leucopenia exists." (4) This observer considers that lymphocytosis (38 per cent. or more of lymphocytes) indicates that toxins or streptococci or both are entering the blood stream. He states that he found a lymphocytosis only twice, in 100 cases of chronic disease where no focal infection existed. Torens claims to have found a certain type of leucocyte in the blood indicative of infection about the teeth. (5) This cell, he thinks, originates in the lymph glands draining the infected area. Now, if all these statements harmonized and had been accepted by all, we would have our problem nearly solved, but Dr. Russell Haden concludes, after exhaustive experiments, as follows: The results of the study of

the white cell count, and the differential count, in 200 patients, is presented, 100,000 white cells having been counted, but we find that the differential count is of little practical value in determining whether a patient is absorbing toxins, or bacteria, from possible foci of infection about pulpless teeth.

And thus we find another pet theory is of very little use to our diagnosis at present and so another link of the chain needs strengthening.

A few years ago many oral surgeons considered it advisable, in the removal of infected teeth, to not only curet the alveolus, but even to extensively chisel away a considerable amount of the possibly infected bone. To-day we have such an imminent authority as Thomas L. Gilmer, of Chicago, stating the following, "As a rule curettment of tooth sockets is wholly unnecessary and unwarranted. I have proved this by examining many thousand radiograms of edentulous, or partly edentulous, jaws in which curettment had not been done, and in only a few instances have I found any radiolucent zones remaining, and where such zones were found, they proved to be small innocuous cysts. Hence another link in the chain is weakened.

In fact, Theo. B. Beust, M.D., D.D.S., Louisville, Ky., has even doubted the importance attributed to streptococcus viridans. He calls it a germ without a history, and, according to many authors, a germ without a proven existence. Until recently considered a harmless saprophyte, it to-day has assumed the role of a causative agent in the production of many diseases peculiar to the human.

Thus I have tried to show you the considerable amount of doubt existing regarding the relation of oral focal infection to systemic disease. "A chain is only as strong as its weakest link" and we believe every link of the chain of diagnosis and treatment is not secure, and hence, until that chain is strengthened, we believe in the conservative leaders of both professions. The following quotations from various authorities should emphasize my contentions for conservation.

Edward L. Miloslavish, M.D. (Milwaukee) says, "Not so long ago, our entire interest was centered on the tonsils, to which were traced the beginning and the end of all bodily ailments. Exaggerations of every variety followed, attended, as usual, with the most absurd predictions. Consequently, in many cases, tonsils were removed without proper scientific indi-

cation, because of an apparent, or a hypothetical, danger. Only recently, during the short course of one year, more than 1,000,000 tonsillectomies were performed, seemingly as a result of autosuggestive influences exerted on the practitioners, who resorted to these radical methods without proper scientific reasons.

And now our present era is concerned with the general extraction of the teeth. The term, focal dental infection, was formulated, and already influences every medical thought and activity.

Should the dental profession accept and apply the theories formulated by Rosenow, and developed by others, regarding dental focal infection, we shall soon be confronted by millions of crippled mouths; "we shall soon be a toothless nation."

Dr. C. N. Johnson, who has been a leading light in the profession, and Professor at the Chicago College for several decades, sums up the pulpless tooth problem, to date, in these words: "Nowhere in our entire history has there been a more deplorable chapter written than that which has appeared in recent years on this subject. A proper attitude on the question cannot be gained by taking a relatively few cases in which pulpless teeth have been an undoubted detriment, and building up a theory of sweeping condemnation, as has been done in this instance. What is the clinical history of pulpless teeth as noted by many careful, conscientious and reputable men? It is this: That when care is exercised in their treatment, a great majority of pulpless teeth behave in such a manner as to prove of the utmost benefit to the patients, and of a negligible amount of harm.

"Whatever findings on this subject may be arrived at, by laboratory investigation, there is still another phase of it which must be reckoned with. It is easy to build up a theory on the basis of blood analysis and bacterial counts, which reads convincingly, and which impresses the hearer. *There is no disposition at this time to minimize their importance in all disease processes*, but laboratory findings do not tell the whole story of the behaviour of pulpless teeth; nor should they determine our entire mental attitude toward them. With sane and thinking men, the evidence of long clinical experience cannot be ignored in forming an opinion as to the danger or the efficient serviceability of pulpless teeth, and yet, with some of our extremists and alarmists, the aggregate practical experience of many re-

putable, thoughtful and conservative practitioners has been set at naught, as if nothing has previously been known of the subject, before the present avalanche of prejudice had developed against the retention of pulpless teeth. For the past few years there has been an altogether undue concentration on the teeth as causative factors in disease; and more injustice has been done to people than can ever be atoned for by either physicians or dentists. It has become the prevalent practice with many physicians to at once charge the teeth with all the ailments of humanity without being broad enough to look farther for possible trouble in other organs. To use the vernacular of the street, the teeth have been an 'easy mark' for the rank and file of medical men.

"It matters not that this statement may elevate the brows and cause consternation in the seats of the mighty. It is profoundly true, and it will be acknowledged as true when this wave of emotionalism and sensationalism shall have passed away—which, happily, it is certain to do in the fullness of time."

Even Weston A. Price, as radical as he is, is quoted as follows: "Just here I wish to introduce a warning: Exodontists and physicians who do not have the heart-rendering worries of making dentures comfortable and serviceable, under conditions which are so nearly impossible as to be very discouraging, often feel justified in removing many doubtful teeth. *I am seeing continually patients who are suffering more from the inconvenience and difficulties of mastication and nourishment, than they did from the lesions from which their physician or dentist had sought to give them relief.*"

The text of my final plea, to the two professions of medicine and dentistry, is for co-operation, for each to recognize our interdependence, for the benefit of the health of the human race. When the two professions get together to discuss ways and means of controlling oral infection and its ravages, they find that a readjustment is necessary in order that they may understand each other. The dentist must readjust his technique on the basis of anatomy, physiology and pathology, and the physician can no longer ignore the seriousness of oral infections. Nevertheless it is a sad commentary that the doctor of dentistry has not been taken into full fellowship by the doctor of medicine. While it is true that physicians commonly refer to the dentist cases in which they suspect the mouth as an etiologic factor, yet consultations, as they are conducted between mem-

bers of the medical profession, are rather the exception. The tendency too often is for the doctor of medicine to expect the doctor of dentistry to work under his dictation. A great source of misunderstanding between the medical and dental professions is the prevalent practice of referring patients to x-ray Laboratories, run by technicians who have no knowledge of dentistry. A report is sent to the physician, and he in turn orders the extraction of certain teeth, based upon the report of such laboratory. The necessity for extraction cannot be determined by the lay technician, nor by anyone from radiograms alone without clinical report. The medical profession should not overlook the advantages of nature's own teeth and should remember that no artificial restoration can ever function with anything like the efficiency of the natural teeth. It has been estimated that the best set of artificial dentures that a dentist can make has about thirty per cent. of the efficiency of the best natural set. It is this glaring discrepancy between the functioning of the two kinds that makes the conscientious dentist sometimes over conservative. The physician is sometimes too radical in his indiscriminate conviction of what he believes to be offending teeth, for he more fully understands the prognosis of certain systemic diseases that might be caused by those teeth. In order for each profession to view the patient with the proper perspective it is necessary for each to consult with the other and both to co-operate.

Now, a few emphatic words to the dentist, are in place. No recent contribution has done more to dignify the position of the dentist, *or to increase his responsibility*, than the theory of focal infection. But, the added burden of this increased responsibility for health conditions, remote from the mouth, *is one that he must accept, with all its consequences*, or give up the practice of his profession. The dentist is not in a position to attempt to diagnose general ailments and to trace these conditions to the teeth; but, he should be able to *determine accurately and make an intelligent report as to all pathological conditions of the teeth and surrounding structures, that might be the source of systemic involvement*. More important still, the dentist should make himself component to *eliminate* all such sources of focal infection.

Even more important than anything previously mentioned is for the dentist to co-operate with the physician in the prevention of focal infection in the oral cavity. Prevention must be

considered prenatally, for it is useless to try to correct a condition after birth which has been brought about by the mother's incorrect living, an insufficiency of sunlight in her daily regime, and, especially, lack of a proper diet before her child was born. The responsibility regarding deciduous teeth starts as early as the forty-second day, and for the first permanent molars, as early as the ninetieth day of intrauterine life. Then, after birth the same precautions must be taken as long as the child is breast fed, and later the food must be carefully selected with due regard to calcium metabolism. The teeth, when formed, should have the proper amount of exercise. The use of the toothbrush cannot wholly make up the loss by eating soft food.

Practically all teeth that act as foci of infection, have been made pulpless by decay or because of it. Though some pulps of teeth have been devitalized in order to stand the utilization necessary for being used as abutments for bridges, yet, in the newer types of bridgework that may be used to-day, I do not believe that one is *ever justified* in devitalizing a tooth for that purpose alone. By the careful education of the public to the importance of visiting a conscientious dentist every six months or oftener, and by great care on the part of the dentist to properly restore the part of the tooth lost by caries before that decay has reached the pulp, there should be very few dental pulps lost in future and hence no focal infection from them. The same early and regular attention to the prevention of pyorrhœa will eradicate that source. *I believe the time has arrived when a man's success as a family dentist should be measured by the number of patients that he is able to pilot from early childhood to adult life with a full quota of teeth in normal occlusion, with vital pulps and healthy investing membranes. That is the ideal solution of the oral focal infection problem.* But, in a few cases where the patient has been unwise enough to neglect a tooth until the pulp is exposed, then, under certain conditions, I believe it is still wise occasionally, where the tooth has *strategic value*, to devitalize and remove the pulp. But, the most obvious and important conclusion, from the research work thus far accomplished, is *that root-canal operations should be done with much more care and thoroughness than has ever been the case with a large number of practitioners.*

If, then, we earnestly do our duty as dentists in the preven-

tion of foci, I believe the rising generation will be remarkably free from oral focal infection.

To clear up the mistakes of the past, is a serious problem, but, until we have learned more on this subject let us be conservative. In conclusion I can find no words more fitting than those of Dr. E. H. Hatton, a prominent member of the medical fraternity in Chicago. "Focal infection still has the status of an hypothesis. One can neither promise the individual, nor the world, that if all traces of mouth infection are eliminated, a noteworthy, substantial, favourable result is bound to follow. Our promise to the individual should be guarded. There may be a connection between his mouth infection and his broken health. If so, the effect of its removal may be almost miraculous. If not, our efforts will be entirely in vain. We have, as yet, *not sufficient evidence to assume that the removal of mouth infection is going to exercise a profound influence upon the incidence of degenerative diseases of the latter decades of life.* We may, and do hope it is so." It is my hope that both our professions will adhere to a middle-of-the-road programme, that the dentist will not relapse to the sloppy procedures of the past decades, *and that neither profession will be carried off its feet by the adoption of a policy of extreme radicalism.*

Growing Old Gracefully

“ JOHN QUINCY ADAMS, sixth president of the United States, grew old gracefully, as indicated by the following extract from his biography: “John Quincy Adams enjoyed over four score years of profitable life. In his declining years it was related that a friend who was in the habit of calling on him daily when he was confined to his home as the result of a stroke, greeted him one morning—‘Well, how is John Quincy Adams this morning?’ His reply was, ‘John Quincy Adams is very well, thank you, but this old dwelling that he has been occupying for over eighty years is all going to pieces, and he has been in communication with the Architect and Builder, and he finds that it can no longer be repaired. Consequently John Quincy may have to move out any day’.”

Fifty-Three Years of Successful Dental Practice Accomplished by Dr. R. E. Sparks, of Kingston, Ontario

IN 1875 R. E. Sparks was enrolled as a Licentiate of Dental Surgery in Ontario. Dr. Sparks was born of English parents, in what was, at that time, Barton Township, in the County of Wentworth. It is now the East End of the City of Hamilton. When quite young he moved with his parents to a bush farm in the Township of East Flamboro in the County of Wentworth, where he lived until he attained his majority. He was the youngest of a family of eleven, the only one born in Canada and the only one living to-day. The hard, out-of-door work on the farm contributed to produce a sturdy physique which has stood him in good stead. He was educated at the Common School and at St. Catharines Collegiate Institute. It was while attending the latter that he became known to the late Dr. T. J. Jones, a practising dentist of that city, who desired to indenture a student. An agreement was entered into for a two-year term, as required by the Dental Board regulations in force at that time. The Student appeared before the late Dean Willmott, one of the Commissioners appointed to conduct Matriculation examinations for such as should desire to enter upon the study of Dentistry in Ontario and was registered as a student of Dentistry.

The first dental engine,—the Elliott,—came upon the market about that time. Dr. Jones attended a dental Convention where the use of the engine was demonstrated. Being quite enterprising he purchased two,—one for himself and the other for his student. Advertising was not, in those early days, unethical, as it is now. After the installation of the Engines, Dr. Jones put an announcement in the local papers with display head lines, reading, "Teeth filled by Machinery." It had a boomerang effect. Some Citizens declared that having teeth filled by hand was bad enough,—no machinery for them. Rubber dam was introduced at about the same time as the introduction of the dental engine.

Dr. Sparks graduated from the Baltimore Dental College, the College of Physicians and Surgeons, Baltimore, and in 1875 from the School of Dentistry of the Royal College of Dental Surgeons of Ontario. He served one year as Presi-

dent of the Ontario Dental Association and was President of the Eastern Ontario Dental Association upon more than one occasion. He is the only surviving charter-member of the Eastern Ontario Dental Association, which last year celebrated its fiftieth anniversary.

A PERSONAL MESSAGE FROM DR. SPARKS.

The Editor suggested to Dr. Sparks that he send, for publication, a personal word to his confreres throughout Canada and he has kindly forwarded the following:

"The dental practitioner of fifty years ago was deprived of much equipment and material so common to the practitioner of to-day. It is a question, if a recent graduate were 'turned loose' upon the public and limited to the equipment and conveniences afforded the pioneer operator, of fifty years ago, if he would be a greater success than his grandfather was.

"He would be denied the x-ray, so much depended upon in present day practice for dental diagnosis. He would not have an electric engine, nor even an electric light. He could not use a baked porcelain inlay, nor a cast gold inlay, as he would not possess an oven to bake the one nor a casting machine with which to cast the other, nor Oxyphosphate of Zinc with which to set either one. No fixed bridges nor Richmond Crowns could be used. Silicate cement, so largely used for filling anterior teeth, would not be available. Tooth extractions would have to be performed without local anæsthetics. Many other appliances, instruments and materials in common use at present, but which were not available fifty years ago, make me wonder if as much advancement will be made in the practice of dentistry in the next half-century as has been made in the last.

"Upon the other hand the dentist of to-day, with his modern equipment and more scientific training, is called upon to face problems in practice that were unthought of a half-century ago. In whatever age a man is called upon to practice, he can only do his best to serve his patients, and give the best possible dental health service within his power..

"If the comparisons herein made inspire any young practitioners to take advantage of opportunities within their grasp to make their profession a greater blessing to a greater number, this sketch will have accomplished its object.

"Please convey fraternal greeting, with my very best wishes, to the Dentists of Canada, with whom I have worked for so many years."

R. E. SPARKS.

Porcelain Jackets Under Stress*

DONALD F. McCLOSKEY, D.M.D.

Harvard Dental School, Boston, Massachusetts.



MY paper to-night will treat of porcelain jacket crowns under stress of mastication. I will try to show that a properly prepared baked porcelain jacket will stand up under ordinary mastication. I think that the best way to present this subject is to treat it in several divisions. First, I will review some of the work of Dr. G. V. Black, whom all of us will acknowledge as probably the greatest of all dental scientists. We will study the results of his work (a) on the force used in mastication, with relation to the strength and health of the peridental membranes; and (b) on the force required in the mastication of food. I will then compare his results on human teeth with some of my own results with porcelain jackets.

I

FORCE USED IN MASTICATION IN RELATION TO THE STRENGTH AND HEALTH OF THE PERIDENTAL MEMBRANE.

In 1893 G. V. Black began an inquiry on the force used in mastication, and in 1895 published results in *Dental Cosmos*. The force of the bite, or the pounds-force with which the jaws may be closed upon any object, varies greatly among different persons, and is dependent in a larger degree upon the conditions of the peridental membranes, and upon personal habits in the use of the teeth in mastication, than upon masticatory power. In a tabulation of the results in 1,000 persons, the average force exerted was 171 pounds per square inch of exposed grinding surface on the molars, and very considerably less on bicuspsids and incisors. The variation was from 25 to 275 pounds. The instrument used in testing the force was a gnatho-dynamometer. In using this instrument, error may occur from biting very close to the rubber pads, or from catching too far from the ends, which together may produce an error of about 10 per cent. With this exception, the instrument is as accurate as any spring scales. In these trials, the instrument generally rests upon two teeth in one jaw and

*Read at a meeting of the Harriet Newell Lowell Society for Dental Research, Harvard Dental School, May 20, 1927, and published in the *Journal of Dental Research*.

upon one tooth in the other. Occasionally it can be so placed as to rest fairly on two teeth in each jaw. The force of the bite of any individual is modified very materially (a) by the use habitually made of the teeth, (b) by the loss of the pulp, and (c) by disease of the peridental membranes.

Nearly everyone using the gnatho-dynamometer stops the test because of pain in the peridental membranes, and not because of having reached full muscular effort. Therefore, modification of these peridental membrane conditions is prominently brought about. Full and free use of the teeth in mastication, and especially the disposition to use them freely on hard foods, contribute to strength. Any considerable limitation of the use of the teeth, even for a few days, shows in tenderness of the peridental membranes; and in cases where the patient has fallen into the habit of swallowing food practically without mastication, the power of the bite may be as low as 50 lbs. or less. Incidentally I think this may give us a clue as to why a tooth sometimes hurts from apparently no cause after we place a large restoration, jacket crown, or what-not. In disease affecting the peridental membranes, the power of the occlusion is rapidly reduced; that is, the muscles of mastication are held from exerting full power by pain warning them to go no further. A tooth from which the pulp has been removed seems never to recover completely.

The limitation of the force of the occlusion, as shown by the gnatho-dynamometer, is therefore a register of the power of resistance in the peridental membranes and not of possible muscular exertion. The strength of the teeth is ample for all stress that is brought against them, provided very hard substances are excluded, such as hard metals, pebbles, etc. This is made clear by trials of the strength of freshly extracted teeth. These were cut squarely off at the junction of the middle and gingival thirds of the crown so that the occlusal portion would stand stolidly on a flat piece of steel arranged in a registering dynamometer.

RESULTS OF TESTS WITH HARD STEEL DIRECTLY APPLIED TO TEETH.**

1. A mesio-buccal cusp of an upper second molar; a fairly sharp cusp. A portion of the enamel of the buccal portion of the cusp split away at 125.

**The figures in this section refer to number of pounds.

2. A rather obtuse lingual cusp of the same tooth. The enamel checked but was unbroken at 350.

3. A disto-buccal cusp of an upper second molar; rather sharp. The enamel began to check at 135, and a part of the cusp split off at 165.

4. A well rounded lingual cusp of an upper bicuspid. A check in the enamel began to show at 100, but no further break occurred at 350. On removing the tooth, the enamel was found to be disintegrated over a small area where the steel had been applied.

5. A sharp buccal cusp of an upper first bicuspid. A check in the enamel began to show at 125, and the buccal portion of the enamel split off at 150.

6. The disto-lingual cusp of a lower first molar; the mesial portion had been destroyed by caries. A check in the enamel began at 115, and the cusp crushed at 150.

7. A sharp disto-buccal cusp of a lower second molar. A check began at 100, and a part of the enamel split off at 140.

8. A lingual cusp of an upper third molar. A check was seen at 100, and a part of the enamel chipped away at 140.

TESTS WITH VULCANIZED RUBBER, 3/32 INCH, BETWEEN THE STEEL AND THE CUSP OF THE TEETH.**

9. A fairly sharp buccal cusp of an upper first bicuspid. No injury at 350, but the rubber was nearly cut through.

10. A sharp mesio-buccal cusp of an upper second molar. No check appeared up to 325. At 335 the rubber suddenly parted, letting the steel come upon the tooth and the cusp was split off.

11. The cusp of a cuspid. No injury at 350.

12. The edge of a central incisor. No injury up to 240, at which point the rubber was suddenly cut, allowing the steel to come into contact and crush the tooth.

These few cases show the strength of the teeth as well as many more cases would. A hard substance like tempered steel, bitten upon with full force, is liable to check the enamel or split off a cusp, for the reason that, with the sharply rounded surface of a cusp, the full pressure is concentrated on a very small area of the enamel. But whenever this force is distributed to a larger surface, as is done by a cusp sinking into hard rubber, no harm is done by even a greater force than is ever used in chewing food.

FORCE REQUIRED IN THE MASTICATION OF FOOD.

Our mode of preparing foods has had a tendency to render them softer and softer. This is probably a blessing to the wearers of some of our full and partial dentures. The following data, from trials published in *Dental Cosmos* in 1895, show the force required for the crushing of meats. The instrument used was the phago-dynamometer, and the work was done by Dr. Black:

	<i>Pounds</i>
Boiled corned beef, nice and tender .	30-35
Beef steak, medium, chuck	40-60
Beef steak, well done, chuck	45-60
Beef steak, rare, tenderloin	35-40
Beef steak, round	40-50
Beef steak, well done, rather tough..	60-80
Mutton chops	30-40
Mutton steak	35-45
Roast veal, tender and nice	35-40
Roast loin of veal	30-35
Roast beef	45-60
Roast beef loin	35-50
Pork loin chops	20-25
Roast pork	30-35
Broiled ham, nice and tender	40-60
Cold boiled tongue, central part . . .	3-5
Cold boiled tongue, near root	15-20

These tests were made with meats placed on sale within two hours after killing and were generally used the same day. This was the custom in most of the smaller cities until it was supplanted by the use of cold-storage meats prepared by the great packing houses, which have now almost universally taken the place of the local butchers. These meats are crushed at from one-fourth to one-third less pressure than fresh meats, and are sometimes even softer than these figures indicate. The following results were obtained with candy:

	<i>Pounds.</i>
Crystals of rock candy	30-35
Lemon tablets	50-70
Hard candy-stick, old	90-120
Hard candy-stick, fresh	45-60
Small cinnamon drops	30-60

II

I will refer often to a "properly handled porcelain" or a "properly baked porcelain." By this I mean a porcelain jacket built up fairly rapidly, thoroughly condensed, kept free from foreign bodies, inserted in a cold or cool furnace—the temperature brought up very slowly to within 25° or 50° of the glazing point on the first bake, and one which is glazed on the second bake by handling the porcelain in the same manner. I find that a porcelain jacket cooled in the furnace is slightly stronger than one cooled in the air. This is probably due to some molecular rearrangement, as in heat-treated metals. In my experimental work, I used duplicate specimens of porcelain jackets made, for various patients, with Justi High-Fusing Porcelain baked in a Barkmeyer furnace.

I took several jackets and packed amalgam dies into them. These dies were ground flat at the free end, and placed in a dynamometer with the occlusal surface of the jacket and the flatbase of the amalgam die both touching the bare metal. I obtained the following results, which should be compared with Black's figures:

BLACK'S DATA FOR FORCE REQUIRED IN MASTICATION OF FOOD.

	<i>Pounds</i>
1. Average masticatory force	171
2. Average force to crush meat	35-40
3. Average force to crush hard candy	65
4. Av'ge. strength of tooth against steel	157

PORCELAIN JACKETS AGAINST STEEL.***

1. Upper lateral, with fairly good shoulder. Crushed at 101.

2. Same tooth, with no shoulder. Checked at 2. The whole thing gave way at 129. The porcelain alone crushed at 83, and the amalgam alone crushed at 155.

3. Upper bicuspid, with no shoulder. Crushed at 40. Another one crushed at 50.

4. Same tooth, with a shoulder. Crushed at 152. Another at 250.

5. Upper central, with no shoulder. Crushed at 30.

***The figures in this section refer to number of pounds.

6. Same tooth, with a shoulder. Crushed at 114, with the amalgam still holding.

7. Upper cuspid, with no shoulder. Crushed at 17.

8. Same tooth, with a shoulder. Crushed at 75; another at 92. Neither of these had a very good shoulder.

9. Upper molar, with no shoulder. Crushed at 30.

10. Same tooth, with a shoulder. Crushed at 220.

This gives us an average of 142 for jackets, with the average shoulder as prepared by practical men. We get an average of 28 for jackets without a shoulder.

Next, I cemented several jackets to amalgam dies, and tested them with the following results:

11. A lateral incisor with a pin instead of a gold core, having a wide but very uneven floor. Checked at 40, and crushed at 172.

12. A bicuspid, with no shoulder, was crushed at 27.

13. A molar, with a fair shoulder, at 197.

14. A cuspid, with a good shoulder, at 176.

15. A molar, with a fair shoulder, at 199.

16. A molar, with no shoulder, at 115.

17. A central, with a good shoulder, at 65.

18. A cuspid, with a good shoulder, at 173.

19. A bicuspid, with no shoulder, was crushed in two places at 170.

20. A bicuspid, with a wide but even shoulder, at 170.

21. A molar, with a fair shoulder, at 191.

This gives an average of 162 for those with a fair or good shoulder.

Next, three jackets, baked by students at this School, were tested. These were also made with Justi High Fusing Porcelain. I got the following results:

22. Cuspid, technique case, good shoulder, four times in the furnace. Crushed at 60.

23. Cuspid, technique case, good shoulder, three times in the furnace. Checked at 25, and crushed at 62.

24. Central, practical case, good shoulder, five bakes (four bakes of 7-8 minutes after 1945°). Glazed for 18 minutes after 1945°. Taken out of furnace four or five times to see if it was glazed on final bake. Crushed at 25.

These results show the necessity for correct handling of the porcelain.

CONCLUSIONS REGARDING THE PORCELAIN WORK.

1. A good, clean-cut, well-defined shoulder is absolutely essential for strength in a crown.
2. The skill with which the porcelain is handled in the baking governs the strength to a large degree.
3. Porcelain jackets properly baked will stand up under more pressure than is ever used during mastication, provided the tooth itself is properly prepared.
4. A well baked porcelain jacketed on a well prepared tooth is practically as strong as a normal tooth.
5. Poorly baked porcelain, on a tooth with a good shoulder, is only as strong as well baked porcelain on a tooth without a shoulder.

The Value of a Credit Balance in Your Vital Assets Account



PEOPLE have no doubt been very much comforted in the past ten years by frequently hearing the statement made that in the last fifty years, fifteen years have been added to the life of man.

This statement is unfortunately somewhat misleading, inasmuch as we will demonstrate that this saving occurs for the most part during the first twenty years of our lives, and in fact the greatest saving is during the first year, as is set forth by the following facts:

- The infant death rate in Toronto in 1910 was 158.5.
- The infant death rate in Toronto in 1927 was 58.8.
- The death rate from tuberculosis in 1910 was 130.0.
- The death rate from tuberculosis in 1927 was 61.6.
- The death rate from typhoid fever in 1910 was 44.2.
- The death rate from typhoid fever in 1927 was 1.1.
- The general death rate in Toronto in 1910 was 15.1.
- The general death rate in Toronto in 1927 was 11.0.

CONTROLLABLE DISEASES.

This means that we are having between 2,500 and 3,000 fewer deaths in Toronto every year as the result of our reduced mortality that we would be having if the death rate of 1910 still obtained.

UNCONTROLLABLE DISEASES.

The death rate from the so-called wasting diseases of middle life, such as chronic heart disease, cancer, chronic Bright's disease and premature hardening of the arteries has during this same period steadily increased.

Obviously then, what is meant by this statement is not that fifteen years have been added to all of our lives, but that the expectancy of human life has been increased, as the result of the activities in the field of preventive medicine, during the first two decades of life.

The so-called wasting diseases of middle life—that is, cancer, chronic heart disease, chronic Bright's disease, premature hardening of the arteries, apoplexy—have not been influenced by the activities in public health and preventive medicine. This is largely due to the fact that these diseases come on so insidiously that their presence is not suspected until they are far advanced, oft times approaching a fatal termination, unless they are revealed as the result of examinations for life insurance, or, as during the Great War, by medical examining boards.

However, within the past few years there has been a rude awakening. We know now that many cases of heart disease, kidney disease, premature hardening of the arteries and apoplexy can be traced back to early infections following an acute communicable disease, and later on to syphilis or focal infection from the tonsils, teeth, accessory sinuses in the head, chronic diseases of the appendix, prostate, gall bladder or from the large intestine.

These degenerative diseases of middle life are responsible for over 40 per cent. of our total death rate every year, and have not only been uncontrolled, but are increasing year by year.

WHAT IS MIDDLE LIFE?

Fortunately this term admits of a variety of interpretations. Owing to the influence of the mind over the body, is it not unfortunate that we have accepted unchallenged the Psalmist fixing man's days as three score years and ten, and furthermore the Psalmist so pictured the decade between 70 and 80 that of those who, by reason of unusual strength, were able to survive the three score years and ten, few cared to take a chance of going beyond the allotted period.

Was not Moses just as reliable an authority as the Psalmist, when he told us in Genesis that "God's Spirit will not always strive with man, yet his days shall be an hundred and twenty years?" Furthermore, the Prophet Isaiah, in visualizing the New Jerusalem, said, "There shall be no more thence an infant of days, nor an old man that hath not filled his days, for the child shall die an hundred years old."

There can be little doubt in my mind that the goal having been fixed at seventy, and this handed down through the centuries, has had a very decided influence on the period of man's life.

Flourens, a renowned French physician and physiologist, who was subsequently raised to the peerage for his scientific achievements, early in the nineteenth century revealed the fact that the human body was constantly undergoing a process of decay and repair, and that the hundreds of millions of cells in the various parts of our bodies, excepting those in the brain, were constantly changing—the old ones were worn out and disposed of and new ones were promptly put in their places.

Flourens divided the life of man as follows:

Childhood—one to ten.

Youth—ten to twenty.

Adult—twenty to forty.

Middle age—forty to seventy.

Old age—seventy to one hundred.

Extreme old age—one hundred to one hundred and twenty-five.

What has been known for three-quarters of a century as "Flourens' Law" is that all mammals should live five times the period of their full development, and this applies to all mammals excepting the human. Inasmuch as man's growth is not complete until he is twenty-five, under the most favourable circumstances he should live to be one hundred and twenty-five years old, which is pretty close to the allotment that was given us by Moses and also by the Prophet Isaiah.

WHAT IS THE REMEDY?

The time to prepare for middle life is in youth, and the time to prepare for old age is obviously in middle life. Therefore, this problem is largely in your own hands. We can direct you as far as medical science will warrant us, but the responsibility as regards results lies with yourself.

"Is it not true," asked Herbert Spencer, "that the physical sins, partly our forefathers' and partly our own, which produce ill health, detract more from complete living than anything else, and to a greater extent make life a failure and a burden instead of a benefaction and a pleasure?"

Lee Hung Chang, one of the ablest statesmen that the Chinese Empire has produced, with his characteristic vision and judgment, set us a valuable example, over a century ago, by employing his family physician for himself and his household, by contract, the conditions being that he would be amply remunerated as long as they remained well, but his pay would cease as soon as they became ill. Just to what extent this has been adopted in other parts of China I have not been able to find out, but it is a most practical method of enforcing the principles of preventive medicine and demonstrating the value of periodic examinations.

Is it not time for us to profit by this example that Lee Hung Chang has set for us? It must be perfectly obvious to all that our only safety against these devastating diseases of middle life is a periodic medical examination by our family physician in order that he may detect any impairment of any function of the various organs of the body, and also the likelihood of focal infection through any of the channels already referred to, and in order that he may intelligently advise us as regards personal hygiene, also regarding immunization against certain communicable diseases.

The human machine has for years been compared to the automobile in order to impress upon our citizens the necessity for an overhauling at least once a year, but even this seems to have failed.

THE ECONOMIC IMPORTANCE OF PERIODIC EXAMINATIONS.

Employers of labour are waking up to the fact that if they hope to get 100 per cent. efficiency from the human machine, working eight hours a day, that machine must be free from defects and periodically examined. Consequently many of them have their own physicians to act as efficiency experts as regards the human machine, to advise the individual employee, who must necessarily be the engineer of his own machine, concerning the weak points and also as to the intelligent care of the machine. In other words, he must be advised regarding the principles of personal hygiene.

One of the largest life insurance companies in the United States began by having 6,000 of its policyholders examined periodically and this has been gradually increased to practically 50,000. While this meant an enormous expenditure by the company, yet it resulted in 24 per cent. of an increase in the expectancy of those examined as compared with a corresponding number who had not undergone the examination, so that this proved to be a valuable investment rather than an expenditure.

The concensus of opinion of a committee of experts of the American Medical Association was that these periodic examinations should be made by the family physician, who is more in touch with the history of the individual and of his family, and consequently will feel a greater personal interest and responsibility, and if he is not capable of making this physical examination, then he is not capable of being the family physician. In this opinion we fully concur.—*Health Bulletin, Department of Public Health, Toronto.*

Portrait of the Late Dr. R. G. McLaughlin Unveiled.



ON the evening of 15th May, 1928, there was unveiled, in the Board Room of the British and Foreign Bible Society of Canada, a portrait of the late R. G. McLaughlin. Canon O'Meara unveiled the painting and announced that while the late Mrs. McLaughlin had lived to see the portrait during its progress, she had passed away before its final completion by the artist. Mr. J. W. L. Forster has produced a wonderfully life-like portrait of Dr. McLaughlin. Dean Seccombe was present, representing the dental profession.

Obituary

M. B. MALLORY, L.D.S.



IT is with regret we report the passing of M. B. Mallory, father of Dr. Frederick R. Mallory, of London, England. The deceased practiced in Campbellford for a number of years and then moved to Toronto where he has been engaged in practice since 1898. Members of the dental profession extend to Dr. Fred Mallory sincere sympathy in his loss.

Canadian Dental Hygiene Council — Annual Meeting and Report of Saskatchewan Mouth Health Campaign



THE Annual General Meeting of the Council was held at noon on Thursday, June 7th, 1928, at Casa Loma Hotel, Toronto, where there were present: Col. G. G. Nasmith; Dr. Thaddeus P. Hyatt, Metropolitan Life, New York; Mr. N. L. Burette, Metropolitan Life, Ottawa; Mr. John Appleton, Dr. Eudore Dubeau, Dr. Wallace Seccombe, Dr. A. E. Webster, Dr. Gordon Bate, Mr. James E. Simpson, and a number of others, including the following representatives from the various Provinces:—

British Columbia: Dr. Emory C. Jones. Alberta: Dr. John Clay. Saskatchewan: Drs. J. A. Brett, Lorne C. Fusken and McDougall. Manitoba: Drs. Clarke, Garvin and J. F. Morrison. Ontario: Drs. A. W. Ellis, F. C. Husband and J. C. Livett. Quebec: Dr. Mowry. New Brunswick: Dr. Jas. M. Magee. Nova Scotia: Drs. S. K. Thomson, Stanley Bagnall, Ritchie, Faulkner and Oxner. Prince Edward Island: Dr. F. Smallwood.

In opening the meeting, Dr. Trotter explained that the president, General Mewburn, was unable to be present, having important engagements in Montreal and Ottawa. It had been expected that Mr. E. E. Reid, the Vice-President, would be on hand to take the chair, but unfortunately, his brother-in-law, the President of the London Life Insurance Company, had died suddenly the previous day, and therefore it was impossible for him to be present, and the duty of presiding, therefore, devolved on Dr. Trotter as Chairman of the Executive.

The Secretary next read the notice calling the meeting, and replies expressing regret at inability to attend, from Hon. S. C. Mewburn, Hon. J. H. King, Minister of Health, Ottawa; Dr. J. A. Amyot, Deputy Minister of Health, Ottawa; Dr. J. W. Bell, Deputy Minister of Health, Ontario; Dr. J. L. Biggar, National Commissioner, Canadian Red Cross; Henry E. North, Third Vice-President, Metropolitan Life, Ottawa; J. E. Atkinson, Toronto Daily Star; Dr. T. C. Routley, Dr. Harvey Agnew, Dr. A. Primrose, Dr. C. M. Hincks and others.

Dr. H. S. Thomson, as Field Secretary of the Council, reported on the Saskatchewan Campaign. He declared that every objective set in last year's outline of future activities had been accomplished and more. He summed up the work in Saskatchewan by saying that from February 20th to April last, every man, woman and child in that Province took a course in mouth health and preventive dentistry. "We asked for co-operation and we got leadership. The Campaign fairly ran away from us." He described in detail and with both comedy and pathos the growing enthusiasm that met his efforts and the incidents of the Campaign. To the dentists of the Province, he gave credit for 100% co-operation. "The Government of Saskatchewan made the dentists feel that they were philanthropists in putting on the Campaign," he said. To the Department of Health and Education he was particularly complimentary, and with one exception the newspapers of the Province had supported the effort wholeheartedly. The children for whom it was designed, he said, were all for it."

As a result, he stated, that new legislation had been enacted empowering any municipality to bring in a doctor or a dentist for curative or preventive measures, and that the Saskatchewan Department of Health was going to establish a dental department with a full-time director in charge.

Dr. Thaddeus P. Hyatt, representing the Metropolitan Assurance Association of New York, declared, "I am not alone filled with amazement, but with deep admiration for the work of the dental profession in Canada. I am at a loss to know why they wanted me to come here. I have learned as much or more than I have been able to teach. Nowhere in thirty years of experience have I met a group of men so successful in their own efforts and in addition so successful in securing the co-operation of other bodies and organizations." He offered the suggestion that the Insurance companies doing work of an investigatory nature should co-operate with the dental faculty of the university, for the compilation of data with regard to the effects of dental hygiene upon general health.

Dr. Eudore Dubeau, Dean of the Faculty of Dentistry, at Montreal University, outlined plans now under way, for educational work in Quebec, and stated that the greatest fight in that Province had been against the advertising quacks, but

ORAL HEALTH for June, 1928

that the last of these had been conquered, and the way opened for progressive educational work.

James Simpson brought the congratulations of the Trades and Labour Congress of Canada and pledged its aid in any way that it could co-operate for the betterment of health of the people.

Dr. E. A. Grant presented the Secretary-Treasurer's report and said:—

"The Red Cross grant of Two Thousand Five Hundred Dollars (\$2,500.00), received last year, is not included in this Statement, as it was received early in 1927, and appears on the previous Statement. The balance on hand at the beginning of the financial year is part of this grant.

I would also like to draw attention to the fact that while the statement shows a balance on hand at the end of the year of Seven Hundred and Twenty-Nine Dollars and Fifty-Three Cents (\$729.53), yet there are outstanding accounts of Five Hundred and Eight Dollars and Ten Cents (\$508.10), so that the net balance after the years' work, is Two Hundred and Twenty-One Dollars and Forty-Three Cents (\$221.43).

While the Statement only covers actual receipts and expenditures of money, yet, if a cash valuation could be placed on such contributions as the assistance of the Metropolitan Life Insurance Company, in loaning Films, etc., and the Canadian Oral Prophylactic Association in loaning the services of Dr. Harry S. Thomson, our budget would total about Fifteen Thousand Dollars.

STATEMENT OF RECEIPTS AND DISBURSEMENTS.

(Year ending May 31st, 1928.)

Receipts.

Cash in bank, June 1st, 1927	\$ 1,991.25
Dominion Government Grant	5,000.00
Ontario Dental Association	300.00
Canadian Dental Research Foundation, Rent	100.00
Canadian Life Insurance Officers' Association, Grant re Booklets	2,703.65
Sundry Revenue	2.99

\$10,097.89

Disbursements.

Saskatchewan Campaign	\$ 3,729.66
Educational Material (not including proportion used in Saskatchewan Campaign)	1,983.88
Secretary, Honorarium	1,033.32
Proportion of Field Secretary's Salary	1,500.00
Travelling Expenses	472.52
Rent	300.00
Stenographic Assistance, Stationery, Postage and Tele- graphs	286.98
Audit Fee	20.00
Annual Meeting	42.00

\$ 9,368.36

Cash on hand, and in bank, May 31st, 1928	729.53
---	--------

\$10,097.89

Note: The unpaid Accounts amount to \$508.10.

Audited and Approved.

Thorne, Mulholland, Howson and McPherson,

Chartered Accountants.

ORAL HEALTH for June, 1928

STATEMENT OF EXPENSES RE SASKATCHEWAN CAMPAIGN.

(Year ending May 31st, 1928.)

Field Secretary, Travelling and other expenses	\$ 882.42
Saskatchewan Central Committee Expenses	190.80
Free Travelling and Dental Clinic	692.95
Essay Prizes	110.00
Educational Material, Proportion used in Campaign	1,703.49
Sundry Travelling Expenses	150.00
	\$3,729.66

SASKATCHEWAN MOUTH HEALTH CAMPAIGN, 1928.

IN presenting this report of the Saskatchewan Mouth Health Campaign, February 20th to April 1st, 1928, an attempt has been made not only to present you the material and tangible factors that were concerned, but to embody in it some of the atmosphere and spirit that prevailed from one end of the Province to the other and from the beginning to the end of the programme. These intangible things, combined with the splendid spirit of co-operation, were largely responsible for the success—and it was a success—of the campaign. The primary motive of the effort was the promotion of Mouth Health, but as the campaign progressed it became apparent that it had taken on the form of a general health programme from a dental health standpoint. This feature brought about a greater success than we had anticipated, due to the fact that it has tied up the profession of Dentistry with every public welfare and health organization in the Province. This will have a permanent value in general health campaigns for the future.

While the Saskatchewan Mouth Health Campaign was organized, financed and carried out by the Canadian Dental Hygiene Council, on the invitation of the Saskatchewan Dental Society, it developed into a co-operative effort, in which the Dental profession was joined by the Provincial Government of Saskatchewan, various organizations, individuals and officials throughout the length and breadth of the Province; so that it is possible, broadly speaking, to report what was done in one sentence: The entire Province of Saskatchewan took a course in Preventive Dentistry.

The campaign was not an experiment, for its aims were well defined from the first. It was not intended purely as an educational effort, to be made up of "evangelistic" addresses and speeches, which would drive home to audiences how bad they

were and how good they might be. The programme had been formulated by the Council in the hope of reaching every man, woman and child in the Province with the information that Mouth Health means better general health—that diseased teeth in a diseased mouth lead to ill health, disaster and sometimes death. Insofar as it was an educational campaign, it was education for action, and the action consisted in a definite movement on the part of individuals for better mouth health personally.

Saskatchewan is one of the Dominion's younger provinces. Its width is approximately 350 miles, and it stretches to the north for more than 700 miles. Scattered over this area is a population of, roughly speaking, 836,000 persons. Here those in charge of the campaign were faced with the fact that the Province has proportionately more new Canadians than any similar division of the Dominion. In addition, the majority of the people are of the younger generations. Comparatively speaking, there are few old people. The school attendance, for instance, is the largest in proportion to population of any province in Canada.

These new Canadians have come from countries where they have not had the advantage of health education, nor any propaganda or publicity along educational health lines. They must be physically fit when they arrive in our country, or they are not allowed to enter, but our preliminary surveys indicated that they had not fully understood that the change in their environment when they emigrated to this new land, involving as it did a change in diet, also demanded different methods of mouth care.

These people, however, are intensely interested in health subjects—eager to learn, and keenly alive to anything that is new to them. They are vitally concerned with the question of sane standards of living, and even more vitally affected by anything which touches the health, well-being or education of their children. These facts are given here because they were matters which had to be considered in detail before the inauguration of the work, and because they demonstrated that Saskatchewan offered an unusual field.

PRELIMINARY ORGANIZATION.

For the purpose of organization, the Province was divided into sixteen districts, each district with a local committee and

chairman. In many of the districts an endeavour was made to have this committee made up of a Red Cross worker, a medical health officer, a representative of the service clubs or churches, and a representative of the press, with one or two dentists added in every case to maintain dental contact.

The task of co-ordinating the different phases of the programme and supplying general leadership was the particular work of the Canadian Dental Hygiene Council. The Field Secretary visited each section, met the committee there, had interviews with executives and officials of every organization whose co-operation and support was hoped for. In conference with the committees, programmes of activities were outlined to suit each district.

A first meeting for organization purposes was held, in every case, thirty days before the date of the actual campaign. This gave ample time following organization to secure the greatest publicity and enlist support, thereby creating the maximum of interest in advance throughout the general public.

CO-OPERATION.

The Profession of Dentistry.—Any mouth health campaign has a unique advantage in that it can secure in every Canadian province a nucleus of trained workers, ready to assist whole-heartedly in the carrying out of any programme. This is the Profession of Dentistry.

The assistance which its members can, and do, render under such circumstances as the Saskatchewan campaign, is of such value that it is scarcely possible to overestimate it. It is to the great credit of the profession that 100% of its members give of their time and knowledge, earnestly and without stint, in order to promote preventive dentistry in all its phases.

In this particular regard the Profession of Dentistry stands out unique. It has been rendering a service to the nation and to the community which could only be undertaken by men actuated by the highest professional ethics and personal ideals. It is carrying out a work which, from one point of view, defeats the Profession's own ends. It is sponsoring, with a great deal of energy, an effort that does not in any sense mean financial remuneration—in fact, it means the opposite.

The dentists of Saskatchewan, from one end of the Province to the other, without one single exception, entered mag-

nificantly into this recent campaign, assisting in organizing as well as in carrying out every phase of it. As a concrete example of this we would like to report the progress of the preliminary arrangements in one Saskatchewan city. The city has 24 dentists. At the organization meeting, when a general invitation had been sent out, asking all those interested to attend, 22 dentists came to take part. On the opening day of the campaign 24 dentists left their offices to aid in the work of inspecting school children. This is but an example of the co-operation given in every city and town throughout the Province.

Government of the Province of Saskatchewan, Department of Health. — A happy feature of the campaign was the complete and outstanding co-operation of the Department of Health. The Hon. Dr. Uhrich, Minister of Health; Dr. Middleton, Assistant Deputy Minister, and Dr. Seymour, Special Adviser to the Department, individually gave us co-operation and assistance and, in many instances, leadership of a very tangible sort. Also, letters were sent out from this Department to its staff and public health workers, directing them to devote their time during the campaign to the promotion of its programme. A letter was also sent to each medical officer of health—over five hundred in the Province—asking him to organize meetings, act as chairman, if necessary, and to promote, through his own committee, the general programme and its objects. Under these auspices, too, a great deal of valuable publicity was secured, notably in its authorization for the use of all motion picture films, which saved the committee considerable financial outlay.

Department of Education.—The Department of Education, Hon. Mr. Gardner, Minister, and Mr. Ball, Deputy Minister, were apparently just waiting for some such organized effort to promote mouth health, for not only was their co-operation immediately available, but they placed at our disposal their departmental machinery to assist in every way possible. Through the medium of school inspectors, principals and teachers, the Department of Education made possible achievements which could not otherwise have been attained. Through the co-operation of this Department it was possible to get direct results among school teachers and their pupils, as well as in the ranks of Normal School students. From the Department a personal letter was sent to every principal and

teacher in the whole province, asking definite co-operation and requesting that they place set periods during the school hours at the disposal of our programme committee, so that addresses might be arranged. This assistance made possible a very splendid programme in this field, under the best auspices. Ample time was given to the workers and every facility placed at their disposal. The Department of School Hygiene, under the Department of Education, Miss Ruby Simpson, Director, gave very valuable assistance throughout the entire campaign to the Central Committee and every local committee throughout the Province. Miss Simpson devoted a great deal of her time to organizing and promoting the free travelling dental clinic, and in a great measure the success of this effort was largely due to her assistance.

Red Cross.—Saskatchewan is particularly fortunate in that it has a very vigorous Red Cross Society, headed by Commissioner Marshall. The Provincial organization, through the assistance it gave in arranging meetings, promoting publicity and enlisting the support of its workers, was responsible for a large measure of the campaign's success. The financial assistance which the Provincial Red Cross gave in providing filling material for the free travelling dental clinic aided in a very tangible way one of the most successful parts of the great work.

Department of Publicity.—One of the most troublesome features in organizing a mouth health programme heretofore has been to obtain the desired co-operation from the newspapers. During the Saskatchewan campaign this matter was very splendidly taken care of for the committee by Mr. W. J. Kerr, Director of Publicity for the Province. Five special articles on Mouth Health and Oral Hygiene, which had been prepared by the committee, were issued by the Director of Publicity and appeared in 102 newspapers. In no other way could the Province have been covered so completely. Besides these, the energy and news value of our programme inspired many editorials and gave first page prominence to reports of our meetings. The Saskatchewan Mouth Health Campaign owes a great deal of its success to Mr. Kerr.

MATERIAL USED IN THE CAMPAIGN.

Moving Picture Films.—During the Saskatchewan Mouth Health Campaign 31 special mouth health films were used. Of these, 25 were what is called "trailers"—short four-minute

reels. They were specially prepared for telling the story of the Saskatchewan effort. While short, they did teach in a convincing manner the lesson that mouth health is maintained by certain definite action on the part of the child or individual, and that the following of this teaching has its result in better health and happier life.

Six feature films were used. These were of the ordinary twenty-minute length and utilized a vein of comedy which carried with it a good moral to drive home their story in an interesting manner. Two special films, "Working for Dear Life" and "Diphtheria," were provided by the Metropolitan Life Insurance Company. These were of assistance in broadening out our Dental Health programme into one of general health.

BROADCASTING.

Radio messages were broadcasted from seven stations in the Province. The good accomplished through this broadcast is difficult to estimate. These messages carry the story of Mouth Health to regions inaccessible in any other way.

LITERATURE.

In the preparation of literature for this campaign an attempt was made to teach Dental Health indirectly, through interesting stories and object lessons, and for this purpose two special books were issued—one, for children under ten years of age, was entitled "The Gateway"; the second, for older children and adults, was "The Joy of Living." 65,000 of these, attractively printed in four colours, with readable type and broad margins, were printed and the distribution of them carried out chiefly through school teachers and school nurses, who took charge of this section of the work, which eliminated waste and made reasonably sure that a copy went into every home. Nurses and teachers in turn were supplied from the local Dental Committee.

In addition, the Provincial Department of Public Health provided and distributed 35,000 books entitled "Mouth Health," which had been specially prepared for them by the Canadian Dental Hygiene Council. Of these 10,000 were printed in the Ukrainian language; thus was served a section of the population which it would have been impossible to reach otherwise.

ADDRESSES AND LECTURES.

During the campaign proper hundreds of addresses were given to general and women's organizations, such as Canadian Clubs, I.O.D.E. Chapters, Farm Women's organizations, Home Makers' Clubs, Service Clubs and Church organizations. Also to students of the Provincial University, students of the three Provincial Normal Schools, to all High School students and Public School pupils, and an unusual opportunity was afforded to address a convention of over fifteen hundred school trustees assembled in convention in Saskatoon. In these, as in every other type of activity, the effort was made to inspire definite action rather than mere passive acceptance of the gospel of mouth health.

MOUTH EXAMINATIONS.

To give our programme concrete form as opposed to abstract teaching, a general mouth inspection of school children was put into effect and became one of the noteworthy features of the whole effort. Each dentist agreed to devote two days of his time to this work, and in one city alone over 9,000 children were examined in two days.

Throughout the entire province nearly 100,000 pupils were inspected, and in each case a chart of the mouth condition was made in duplicate. One of these remained with the teacher, and the second was sent to the child's home. The chart outlined the condition existing, suggested treatment, and gave some general rules of mouth health. The good accomplished by this one variety of effort was sufficient in itself to make the entire campaign worth while. Not only were children and teachers shown the need of mouth health, through lectures and the distribution of literature, but in a practical manner they learned the details of their own condition, discovered what bearing it had on their future, and also how it could be corrected.

To carry out this work of mouth inspection, the Department of Education provided 60,000 examination charts in duplicate.

MOUTH HEALTH ESSAY CONTEST.

To impress upon the school child in even greater measure the importance of mouth health, an essay contest, open to lower school children, including the seventh grade and high

school pupils, was added to our programme. Essays were to be original, not more than 750 words in length. In all the sixteen districts, prizes of \$10 each were given by the Canadian Dental Hygiene Council for the best essays. An additional prize of \$25 was also offered by the Council for the best essay of the sixteen prize winners previously selected. The judges in each district consisted of a dentist, a school teacher and a newspaper man.

The interest was very keen and thousands of essays were entered. In many districts, too, additional prizes were given by local dentists. The results of the contest demonstrated that there are few more effective ways of interesting the school child in mouth health.

FREE TRAVELLING DENTAL CLINIC.

Saskatchewan is largely an agricultural province. There are many rural districts which have little or no contact with dentistry or dental services. In many cases the nearest dentist is anywhere from 40 to 125 miles distant. Realizing that a large number of people must be suffering through lack of dental services being extended to them, the Canadian Dental Hygiene Council carried on a free travelling dental clinic as a part of this campaign.

This clinic was a splendidly co-ordinated co-operative effort. The salary of the dentist was paid by the Canadian Dental Hygiene Council; the equipment was provided by the Ash-Temple Co., Dental Supply Dealers in the Province. The Provincial Red Cross supplied the filling materials used in treatment, while accommodation for the clinic, as well as living quarters for the operator, were furnished by the Provincial Department of Health. The clinics were carried out in large measure through outpost hospitals, and in every case only where people had no other means of securing treatment. They were never held where there was a resident or a visiting dentist. The needy were taken care of first, younger children given the preference—older ones if there was sufficient time. The Council was fortunate in securing the services of a dentist with a real vision. He performed a high type of service under real difficulties and accomplished a piece of work that will be of lasting benefit to hundreds of people. Close to 1,000 people were treated during the sixty-day period in which this clinic was carried on.

A tabulated statement showing the number of operations and details of treatment given is appended.

There is a very great need for a continuance of this free travelling dental clinic. In Saskatchewan, many of those whom we served are many miles away from any sort of health service. The Province owes it to them to make available some means of treatment, since, after all, free grants of land and similar opportunities to settlers are very much reduced in value if there are no means of maintaining and promoting general health.

TANGIBLE RESULTS OF THE CAMPAIGN.

(1) A keen interest in general health, from a mouth health standpoint, was aroused in the minds of the general public.

(2) Hundreds of children who had not the means of reaching a dentist, nor the funds to pay, received free dental treatment. In many of these cases, mouth conditions were appalling, and the nearest dentist from 40 to 100 miles away.

(3) The members of the dental profession were greatly stimulated in their attitude towards better mouth health.

(4) There was an awakening in the minds of the leaders of the Government and its several department heads, to the necessity of the Government taking some responsibility for the carrying on of mouth health education.

(5) The bringing together of the Provincial Government and the Profession of Dentistry in this joint effort for better health, will be of lasting benefit to both.

(6) New legislation was introduced and will be put into effect, whereby municipalities may use their funds for reparative and remedial work for the promotion of health. This will enable municipalities that are out of contact with dentistry to bring in and pay a dentist to give necessary treatment.

(7) It was proposed by Dr. Seymour, special adviser to the Department of Health of the Province of Saskatchewan, that the Minister of Health establish a Division of Dental Health in his Department, and appoint a full-time Director of Dental Services to carry on and extend the work started by the Canadian Dental Hygiene Council's active campaign. A committee of dentists, representing the entire province, waited on the Minister of Health, and he gave them assurance that definite action would be taken.

(8) The Minister of Health has promised that organized

dental services will be carried on in Provincial Mental Hospitals and other Government Institutions.

(9) During the campaign a splendid co-operation was formed between the Newspaper Publishers of the Province, and the Saskatchewan Dental Association, and, as a result, a series of Mouth Health Newspaper Articles, issued by the Canadian Dental Hygiene Council, are now being published weekly in two hundred and fifty newspapers in the Western Provinces, under the auspices of the Saskatchewan Dental Society.

(10) Full results can be summed up in the following statement: A wonderful service was extended to the entire Province, under most desirable auspices, with perfect and complete co-operation.

In any great undertaking, such as the Saskatchewan Mouth Health Campaign, the great burden of detail work generally falls on one or two individuals. In this particular case, too much credit cannot be given to Drs. A. J. Brett, L. J. D. Fasken, and T. I. Robb, of the Central Committee, who, with untiring energy, devoted a great deal of time, at great personal sacrifice, to the promotion of the campaign from beginning to end. The Council wishes to pay tribute and heartily thank these men and the following for the splendid assistance and service rendered:—

Every Dentist in the Province of Saskatchewan.

The Government of the Province of Saskatchewan.

The Department of Health of the Province.

The Department of Education of the Province.

The Director of School Hygiene.

The Director of Publicity.

The Provincial Red Cross.

The Newspapers of the Province.

All School Principals and School Teachers.

The Dental Supply Houses—Ash-Temple Co., Dental Company of Canada, the National Refining Company.

Theatre owners and managers.

The Service Clubs and hundreds of people who, individually and collectively, gave of their time and knowledge to promote the work which will be of lasting benefit to the health of the people of the Province of Saskatchewan.

It is impossible to incorporate in this summary all of the reports of the campaign received from the various organiza-

ORAL HEALTH for June, 1928

tions and districts. A few of them, however, are appended and these few are characteristic of them all. There is also one of the prize winning essays. This is very creditable to the essayist, when it is realized that she is but a schoolgirl of fourteen years of age.

H. S. THOMSON,
Field Secretary.

LETTERS OF APPRECIATION.

PRIME MINISTER'S OFFICE, CANADA.

Ottawa, May 25, 1928.

Dr. Harry S. Thomson,
Canadian Dental Hygiene Council,
86 Bloor Street, West,
Toronto, Ontario.

I take this opportunity of conveying hearty congratulations to the Canadian Dental Hygiene Council for the splendid work done in the Constituency of Prince Albert and throughout the Province of Saskatchewan during their recent campaign.

The work is of high merit and worthy of public recognition since it afforded dental care to thousands of children, who might otherwise have suffered neglect in this respect, but for the free examination and treatment arranged by your Council in co-operation with the Red Cross Society, the Saskatchewan Departments of Health and of Education, Service Clubs and School Board.

W. L. MacKENZIE KING.

GOVERNMENT OF THE PROVINCE OF SASKATCHEWAN,
DEPARTMENT OF PUBLIC HEALTH.

Regina, Saskatchewan, March 24, 1928.

Canadian Dental Hygiene Council,
86 Bloor Street West,
Toronto, Ontario.

The Department of Public Health of the Government of Saskatchewan has been very pleased to co-operate with the representative of the Canadian Dental Hygiene Association, Dr. H. Thomson, and the Provincial Dental Committee in the Mouth Health campaign, which has been sponsored by them in our Province.

Dr. Thomson, and the Provincial Dental Committee first interviewed the Minister of Public Health, asking that the Campaign be introduced throughout the Province, as being endorsed by the Department. This was done by writing all the Medical Health Officers in the Province, advising them of the nature of the campaign and asking for their support in the way of giving addresses and otherwise assisting in informing the public of the purpose of the campaign. They

ORAL HEALTH for June, 1928

were asked to let the Chairman (dental) of the local district know in what way they would assist. In this manner the co-operation of the Medical Profession was obtained.

Inasmuch as the Department of Public Health had never published any literature appertaining to teeth and mouth hygiene, for distribution, it was decided to have 25,000 booklets in English and 10,000 in Ukrainian, printed to be sent out as suggested by the Provincial Committee, to the various sub-districts. The demand for these pamphlets has been very great, indicating that the time was opportune for the publication of such a booklet.

The Department further communicated with the various hospitals situated in places where Clinics were to be held, asking them to co-operate to the extent of furnishing accommodation for the free Dental Clinic, and maintenance for the Dentist, while at the Clinic, as the contribution of the community to this worthy object.

The whole campaign has been a success, inasmuch as it has stimulated not only the general public, but also the whole Dental profession to the value, necessity and possibilities of mouth health. The campaign has been the means of placing this branch of preventive work in Saskatchewan on the plane to which it belongs and has brought the Dental profession in much closer touch with the Department of Public Health, than it has ever been in the history of the Province.

The thanks of the people of Saskatchewan is due the Canadian Dental Council, in making this campaign possible; the Dental Profession is to be congratulated on the splendid reception and united support it has given to the Provincial Committee in charge of the various districts; great credit is due the Provincial Committee, who so successfully arranged the details of the Campaign, and to Dr. Thomson, the representative of the Canadian Dental Hygiene Council, who directed the line of attack.

From a Public Health viewpoint it is hoped that the Dental Profession may carry on in this good work and make this splendid beginning the basis of continued efforts.

F. C. MIDDLETON,

Acting Deputy Minister,
Department of Health.

GOVERNMENT OF THE PROVINCE OF SASKATCHEWAN,
DEPARTMENT OF EDUCATION.
OFFICE OF THE DEPUTY MINISTER.

Regina, Sask., March 28, 1928.

Canadian Dental Hygiene Council,
86 Bloor Street West,
Toronto, Ontario.

The Oral Hygiene Campaign carried on recently in the Province of Saskatchewan, made possible by the co-operation of the Government of Saskatchewan through its Department of

ORAL HEALTH for June, 1928

Public Health and School Hygiene and the Canadian Red Cross Society with the Canadian Dental Hygiene Council and the members of the dental profession was, from the point of view of the Department of Education, most successful. This Department through its school hygiene branch has for many years carried forward a programme of general health education of which oral hygiene formed an important feature.

The school hygiene branch has always realized the fundamental importance of oral hygiene in relation to general health. Consequently, it was able to contribute to the dental campaign a wide and effective experience based on its intimate knowledge of the field. Recognizing the needs of the children with respect to oral health, the enthusiasm of our school nurses for the campaign was immediate and spontaneous and easily led to direct, efficient co-operation with the Canadian Dental Hygiene Council. The results of the campaign may be found specifically in the excellent dental treatment given to large numbers of children of school age and of pre-school age and in a larger way in the instruction given to parents and the public on the relation of oral hygiene to general health.

The campaign was a fine example of public service. The children of the province have been greatly benefited and the attitude of the public toward dental work and the dental profession has been greatly improved. I wish to congratulate the officials of the Canadian Dental Hygiene Council and the dentists of the province on the splendid results accomplished.

A. H. BALL,
Deputy Minister.

GOVERNMENT OF THE PROVINCE OF SASKATCHEWAN,
DEPARTMENT OF EDUCATION.
OFFICE OF DIRECTOR OF SCHOOL HYGIENE.

Regina, Sask., May 1st, 1928.

Canadian Dental Hygiene Council,
86 Bloor Street West,
Toronto, Ontario.

When the Saskatchewan Dental Campaign was organized the co-operation of the School Hygiene Branch of the Department of Education was sought by the Committee. The aim was to reach as many schools throughout the Province as possible in order that the interest of teachers and School Boards might be secured.

A letter prepared in the School Hygiene office, outlining the aims of the campaign and urging co-operation was sent to all the town, village and hamlet schools in the Province numbering 500. At our suggestion the Canadian Dental Hygiene Council supplied a pamphlet, "The Dental Guide," a copy of which accompanied each letter. The pamphlet was intended to suggest to the teacher special school work in oral hygiene which might be taken during the campaign.

These letters signed by the Deputy Minister were sent from the Department of Education. Many replies were received, some enclosing resolutions approving the campaign passed by local School Boards and Teachers' organizations and all promising all assistance possible.

It was planned that dental inspection of children should form a part of the campaign and for this work record forms were required by the dentists throughout the province. The necessary material for the form, which included a notice of the mouth condition found and instructions for oral hygiene for each child as well as a record stub for the dentist, was prepared by Dr. Thomson. 50,000 copies, arranged in pads of fifty for convenience in using, were supplied by the Department of Education. Requests from dentists for the forms came through the Committee to the Department where the mailing was done and the postage paid.

The approval of the Department of Education with regard to carrying on the essay contest in the schools, was secured. Small poster cards, the reverse side of which outlined the points to be emphasized for good teeth were supplied in large numbers and were sent out with the record forms.

The selection of districts for the free dental clinics presented a problem and the Director of School Hygiene was asked to suggest a plan. It was necessary that the dentist work in centres where the need was great, which were not served by either resident or itinerant dentist, where suitable accommodation both for living and working could be secured, where children from needy rural districts could be brought in, which (because of the season of the year) could be reached by railway,—and because of the short time for which the dentist was available, with as little loss of time as possible between Clinics. Small hospitals, both Red Cross Outposts and Union Hospitals volunteered to arrange for accommodation without charge. For this reason an effort was made to choose centres in which these Hospitals were located. It was possible in five out of ten districts chosen. After much trouble the districts were finally chosen and the organization of the Clinics began. This was done entirely from the School Hygiene office and the plan was as follows:—

1. The Legislative Assembly being in session the member for each of the districts in which Clinic centres were located, was interviewed. His interest and co-operation were thus invited and from him the name of a representative person in the district was secured. The personal letter of the member to the district followed the interview in all cases.
2. Letters were sent to the persons suggested by the Legislative member, outlining the plan of the Clinics and asking that local arrangements be made. The names secured included Doctors, Board of Trade Secretaries and prominent business men,

3. Special letters were sent to all teachers in districts where Clinics were to be held.
4. All School Boards were notified by letter and their active co-operation sought.
5. Hospital authorities were notified through the Public Health Department and the Red Cross Society.

Following this preliminary organization the school nurses for the district (members of the Staff of the School Hygiene Branch) were asked to visit both the village school in the centre chosen and the several rural schools immediately adjacent to the village which were to be included. During her visit the nurse completed the arrangements through—

1. Visits made to all School Boards in order that the objects of the Clinic might be understood.
2. Inspection of all children in the school to determine the number of cases for the dentist. This was necessary in order that the time might be fairly divided.
3. Mother's meetings—to explain the Clinic, to urge that school children attend and to emphasize the attendance of children of pre-school age.
4. Home calls where cases were urgent and mothers did not attend meeting.
5. Visits to rural schools were made with the same aims. It was not possible to arrange for meetings of mothers in the rural districts. Therefore a home visit was made in practically every case where a child required dental treatment. Rural School Boards were interviewed with regard to arranging transportation for the children to the Clinic centre.

The nurses of the School Hygiene Staff considered the free Clinics an excellent piece of Public Health work. Many of these children had never visited a dentist and because of distance had little hope of visiting one for some time. Ten village schools and probably thirty rural schools with all dental work completed stands as a tangible result of the Saskatchewan Dental Health Campaign. On behalf of the children to whom treatment was given we offer hearty thanks and sincere appreciation to the C.D.H.C.

RUBY M. SIMPSON,
Director of School Hygiene.

RED CROSS SOCIETY, PROVINCE OF SASKATCHEWAN,

Regina, Sask., March 28, 1928.

Canadian Dental Hygiene Council,
86 Bloor Street West,
Toronto, Ontario.

When the good news came to the Red Cross of Saskatchewan, through the Saskatchewan Dental Council, that the Canadian Dental Hygiene Council would appropriate \$5,000

for an educational campaign in Saskatchewan during 1928, the appreciation of the provincial executive committee was emphatic and our co-operation promised immediately.

In 1921, realizing from the reports of School Nurses of the Hygiene Branch of the Provincial Department of Education, that the teeth conditions of children in countless schools were appalling, and the Red Cross being committed to Health Teaching for the prevention of Disease; also being fortunate in having the Deputy Minister of Education, and the Director of the School Hygiene Branch on its Junior Red Cross Committee, a scheme of engaging two dentists to travel by motor in Summer and by train in Winter to those regions where dentists were unknown was inaugurated and the service commenced in September, 1921.

Despite many difficulties the work was continued for two and a half years. The expenditure totalled approximately \$25,000 for the examination and treatment of some 6,000 children. It was good work and much needed and the example of even simple dental work spread somewhat among the communities.

It was hoped that municipal governments would be convinced of the value of the service and adopt a form of regular examinations, and at least ordinary treatment for school children, and when the Red Cross felt obliged to withdraw, because of its other expensive services for Crippled Children and the establishment of Outpost Hospitals, there was written a hiatus, regretfully.

We are glad that when your Field Secretary, Dr. Harry Thomson, came to the Province in the fall, he found fine feeling and the habit of co-operation existing between the Red Cross, the Departments of the Government and the Dental Association of the Province. What we needed he supplied. The work done by the travelling dentist in the several districts covered, the great number of addresses given at meetings and by radio by Dr. Thomson, and their interesting and convincing character, on the subject of Dentistry have awakened our people as they never have been.

The work done in Saskatchewan this season has found the dentists of Saskatchewan to be most generous, and, as a body, to have a vision of future better health of our people. There is fair prospect that the campaign so forcefully prosecuted by Dr. Thomson will be continued by the resident dentists.

It has been a pleasure and a privilege for the Red Cross to co-operate. We are all grateful for the assistance given and would be most pleased to assist again. The Canadian Dental Hygiene Council supplied the hyphen to the attempts of the Red Cross and carried the service into new fields, of which there are many still untilled.

W. F. MARSHALL,

Commissioner, Sask. Division, Canadian Red Cross Society,
Regina, Sask.

MOUTH HEALTH.

Prize Winning Essay of School Girl of Fourteen Years.

If we make a careful study of the body and its parts we will find the teeth among the most important. Perhaps no part more directly governs our physical and mental development. Teeth kept healthy and strong insure for us good looks, good health, efficiency in work, comfort, and contentment. They may be guardians or enemies of our health and happiness. It all depends on the attention or neglect with which we regard them.

Sir William Osler said, "There is not one single thing in preventative medicine that equals mouth hygiene and the preservation of the teeth." He was right. Recently it has been discovered that a diseased tooth injures the health of the whole body, through the heart and blood stream, so it is necessary for our health and happiness in future years to take good care of our teeth when we are young.

Our teeth have a hard coating on the outside, called enamel, which protects our teeth from germs. This enamel for our permanent teeth is nearly all formed before we are many months old. Often, however, owing to an unsuitable diet, teeth are erupted with tiny cracks in them. These should be filled at once.

Underneath the hard, protective enamel lies the dentine. This is much softer, and once the germs get through the enamel they make short work of the dentine.

Under the dentine is found the cavity in which are found nerves and blood vessels. Once the germ gets to the nerve the tooth aches and soon an abscess forms. This should be prevented if possible.

The tooth is held in its socket in the jaw by a root surrounded by a membrane called the peridental membrane, and exercise is needed for the health of this root-membrane.

But other things are necessary before we have good teeth.

The care of the teeth really begins before birth, for when a child is born it has the crowns of the baby teeth and portions of the permanent teeth formed. The strength and vitality of a child's teeth depend, therefore, on the food and health of the mother. A proper diet includes milk, leafy vegetables, fruit, preferably fresh, butter, eggs, whole wheat bread and other similar things. If these things are the best diet for the beginning of a child's teeth, don't you think they will be best for continuing the growth and health of our teeth?

When baby's teeth appear they should be properly cared for. Foods containing mineral salts and vitamins are important. Erupting teeth should be cleaned with a piece of clean cloth dipped in a normal salt solution and wrapped around the index finger. Now wipe the mouth out carefully. When the first eight teeth have erupted a tiny tooth brush, with or without an unmedicated tooth paste, may be used.

Baby teeth influence the growth of the permanent teeth, so every precaution should be taken in caring for them.

Six year molars, coming in behind the baby set, are the first permanent teeth a child gets. Then others follow, some replacing the first ones, others coming in behind them, till at the age of about sixteen or eighteen years the full set is in position. Special care should be taken with these, as they are to last a lifetime, and proper food, such as previously described, is best for them. The dentist should be visited at least twice a year; teeth brushed carefully with a circular motion at least twice a day; tiny cavities looked after; plenty of physical exercise taken; also proper rest, plenty of fresh air and sunshine, and, above all, proper exercise of the teeth. Hard crusts of bread are good for exercising the teeth and jaws. The child who has been taught from the first to chew its food well will have far less trouble with teeth and digestion later on.

Chewing brings a healthy blood supply to the roots of the teeth, and prevents the formation of thick, ropy saliva, and keeps the mouth cleaner. These results in turn decrease the number of cases of pyorrhoea and tooth decay. Ill health has gone out of fashion and to be healthy and strong we must have good teeth. If everyone realized the importance of this there would be far less sickness.

Canon Cody Addresses Canadian Dental Association Luncheon

DR. CODY spoke upon the three phases of education by which are developed the individual, his professional faculties and his qualifications as a citizen.

"Professional spirit," said Dr. Cody, "is rapidly passing into realms not hitherto regarded as belonging to the professions. Capacity to earn a living is one of the marks of a professional man, and I may say here that owing to the office nature of your work you are often unable to personally investigate the value of investments offered you, with the result that too frequently you, along with doctors, become the victims of those whose aim is only to exploit the public."

Professions should guard against admissions to their ranks, he said, of men of unworthy character.

"You know how rampant in all professions is the demon of professional jealousy. It should have no place, for Osler's advice is sound, to practice the golden rule towards your fellow-practitioners and the public as well."

The professional man is concerned not so much with profits as with service. He acquires a pride in perfection for its own sake. Out of the education leading to his professional status, and out of his work there should grow naturally a leading citizen, one intelligently interested in public affairs and community problems. He paid tribute to Canada's professional men in this regard. They realize that Canada is worth living for and cannot be kept back except by deliberate malfeasance.

The Canadian Dental Association



THE Canadian Dental Association has been re-organized. It is confidently expected that those who under the former basis of organization took an active interest in, and made valuable contributions to, the Society, will continue to do so, and that many others may be induced to become associated with the various activities of the organization. There are well over three thousand ethical dentists in this Dominion, and if we join together in a sincere endeavor to elevate the standards of Dentistry, and improve its service-rendering power, we will achieve results which will be well worth while.

Under the present plan the business of the Society will be managed by a Board of Delegates, composed of one delegate from each Province, and an additional one from Ontario and Quebec. These delegates will be selected by the dentists of their respective Provinces, and in this way the Board of Delegates will, in a most democratic way, represent the Profession of Dentistry in Canada.

The Board of Delegates is now actively engaged in drawing up a programme of work, and is selecting committees to undertake the direction of the various activities, and the delegate from each Province would welcome suggestions from any dentist in his district in regard to matters which should receive the consideration of the Board.

It is the intention of the Board of Delegates to keep the entire profession well informed in regard to its work, and for that purpose a publicity committee has been appointed. Short articles setting forth the work of the Association will appear regularly in the Journals.

The officers of the Association are:—

President, Dr. Fred. J. Conboy, Toronto, Ont.

President-Elect, Dr. M. H. Garvin, Somerset Bldg., Winnipeg, Man.

Sec.-Treasurer, Dr. J. Stanley Bagnall, 77½ Larch St., Halifax, N.S.

Delegates:—

Dr. Emery Jones, New Westminster, B.C.

Dr. John W. Clay, 94 Herald Bldg., Calgary, Alta.

Dr. A. J. Brett, Regina, Sask.

Dr. J. F. Morrison, 403 Medical Arts Bldg., Winnipeg, Man.

Dr. D. P. Mowry, 127 Stanley St., Montreal, P.Q.

Dr. Phillippe Hamel, 6 d'Aiguillon, Quebec, P.Q.

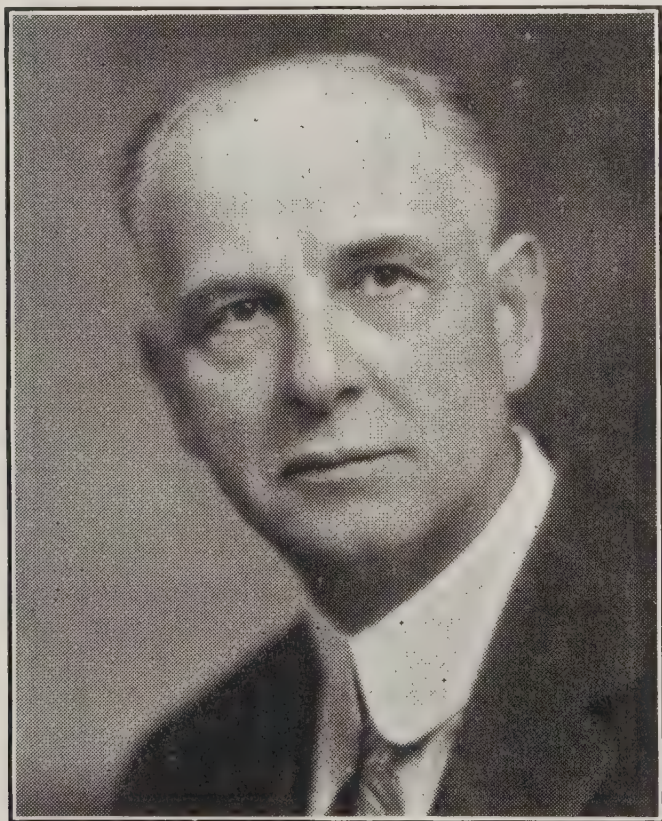
Dr. J. M. Magee, St. John, N.B.

Dr. F. E. Smallwood, Charlottetown, P.E.I.

Dr. A. W. Faulkner, 69 Cottingham St., Halifax, N.S.

Dr. Harold Clark, Temple Bldg., Toronto, Ont.

Officers, Ontario Dental Association.



DR. T. F. CAMPBELL,
President, Ontario Dental Association.

Hon. President—Dr. A. E. Webster, Toronto, Ont.;
President—Dr. T. F. Campbell, Galt, Ont.; Vice-President

—Dr. A. W. Ellis, Toronto, Ont.; Archivist—Dr. C. Angus Kennedy, Toronto, Ont.; Sec.-Treasurer—Dr. F. J. Conboy, Toronto, Ont.

Board of Governors—Dr. L. A. Kilburn, Hamilton, Ont.; Dr. E. C. W. Coupland, Ottawa, Ont.; Dr. O. S. Clappison, Toronto, Ont.

Oral Hygiene Committee—Drs. A. W. Ellis, F. F. Husband, J. C. Livett, R. T. Reade, J. S. Lapp.

Dentists' Legal Protective Association—Drs. Harold Clark, R. G. McLean, W. E. Willmott, W. G. Thompson, Wallace Seccombe, F. J. Conboy.

Portrait and Bust Unveiled

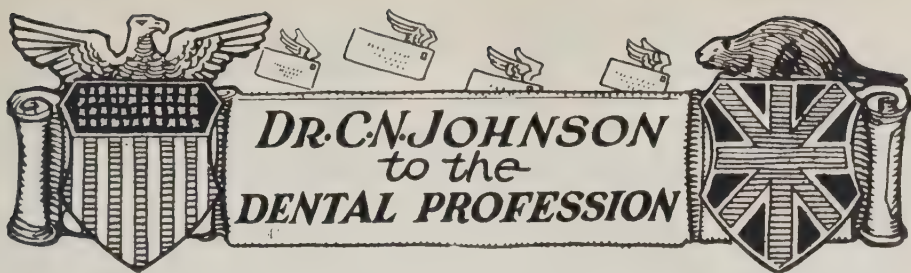


DURING the recent convention in Toronto, the Board of Directors of the Royal College of Dental Surgeons of Ontario invited the members to attend the unveiling of a bust of the late Dean Willmott and a portrait of Honorary Dean A. E. Webster.

The bust was modelled in plaster of Paris by Dr. Charles E. Pearson and the hope was expressed that at an early date a bronze reproduction would be possible. The bust was received by Dr. W. E. Willmott on behalf of his mother, who donated it to the College, where it will find an honoured place in the Dental Building.

The Board expressed appreciation of Dr. Pearson's work in modelling the bust of the late Dean Willmott and he was consequently selected to unveil the portrait of Doctor Webster. The portrait is an excellent likeness and was painted by E. Wyley Grier, the noted Canadian artist.

Dr. Pearson paid a well-deserved tribute to Dr. Webster's many services to the profession of Dentistry and referred particularly to his years of outstanding work as a dental teacher. Dr. Webster fittingly responded and presented the portrait to the Board that it might be hung in the College halls. Dr. R. Gordon McLean, President of the R.C.D.S., acted as chairman and gave unstinted praise to the work of both Dr. Willmott and Dr. Webster. Dr. McGuire of Simcoe, spoke particularly of his personal reminiscences of the late Dean Willmott.



Alone in the Crowd



BOARD a train for New York, or Minneapolis or the West Coast, or Florida. There are people all around me—sitting in the berth opposite, going into the diner, reading in the observation car, writing in the club car—all going in the same direction. It would seem as if I should strike an acquaintance with some of them, but I do not. It is probably my fault. I am very sure that some of these people must have interests similar to mine, if I only knew them. But I hold aloof—that is my way. I am always labouring under a haunting fear that I may intrude and possibly suffer a rebuff if I approach one of them. They seem so sure of themselves, so sufficient unto themselves—as if anything I might offer in the way of conversation would be trivial and inconsequential.

Frankly, I am a trifle afraid of people, especially of strangers—afraid lest I may be accounted a nuisance. I am really incongruous in my present situation; I am out of place. In my ordinary walks of life I talk with people a great deal, and I enjoy talking with them. Life would be extremely dull without my friends—daily I look forward to meeting them—but they are my friends. These people on the train are strangers, and I am not in my element with them. They come very near to me, physically, in the close confines of a railway coach, but mentally and temperamentally they and I are in different worlds. I sometimes long for something to happen to bring us in closer touch, something whereby I may show them that I am human and really have an interest in my fellow-man. If one of them would only fall and receive an injury so that I might, without ostentation or intrusion, offer my assistance. If a little child, wearied with the restrictions of the berth, would escape into the aisle and rush impulsively into my arms and begin to prattle about Santa Claus or some other patron saint. If the dear old gentleman or lady in the seat opposite should become nervously concerned lest they were being carried beyond their destination after the conductor had assured them

several times that they were not nearly there. If the young lady a seat or two back should let her purse fall as she passed my berth—anything to break the barrier of ice which I have unwittingly built between my fellow passengers and myself; because after all, as I have said, I feel that my aloofness is all my fault.

But of course I make the entire journey without any of these things happening, and so I succumb to a false destiny, and register one more failure as an agreeable traveler. I wish it might be otherwise, but I doubt that it ever will. The only thing that makes these journeys at all tolerable is that I sometimes meet an acquaintance on the train, and then nature smiles, and the landscape through the window looks more beautiful. At other times I ask for a table and write during the entire journey—writing is a bad habit I have acquired, and like other bad habits it seems hard to break. Instead of writing I often wish I had a traveling companion so that I would not be alone in the crowd.

C. H. Johnson

A Gradely Prayer

(These lines, which St. Martin's Review ascribes to Teddy Ashton, are taken from a copy hanging on the wall of a country inn in Lancashire)



GIVE us, Lord, a bit o' sun,
 A bit o' work and a bit o' fun;
 Give us aw in th' struggle and splutter
 Eaur daily bread and a bit o' butter;
 Give us health, eaur keep to make
 An' a bit to spare for poor folks' sake;
 Give us sense, for we're some of us duffers,
 An' a heart to feel for aw that suffers;
 Give us, too, a bit of song,
 An' a tale, and a book to help us along;
 An' give us our share o' sorrow's lesson;
 That we may prove heaw grief's a blessin'.
 Give us, Lord, a chance to be
 Eaur gradely best, brave, wise and free,
 Eaur gradely best for eaurselfs and others,
 'Till aw men larn to live as brothers.

Oral Health

Vol. 18

TORONTO, JUNE, 1928

No. 6

EDITOR:

WALLACE SECCOMBE, D.D.S., F.A.C.D., Toronto, Ont.

CONTRIBUTING EDITORS:

C. N. JOHNSON, M.A., D.D.S., F.A.C.D., Chicago.

W. E. CUMMER, D.D.S., F.A.C.D., Toronto.

Entered as Second-Class Matter at the Post Office Department.
Ottawa.

Subscription Price, Canada and United States, two dollars per annum; elsewhere three dollars. Single Copies 25c. Free distribution to all members of the Dental Profession practising within the Dominion of Canada and Newfoundland.

Original Communications, Book Reviews, Exchanges, Society Reports, Personal Items and other Correspondence should be addressed to the Editor Oral Health, 102 Wells Hill Avenue, Toronto, 10, Canada.

Subscriptions and all business Communications should be addressed to The Publishers, Oral Health, Royal Bank Building, 269 College St., Toronto, 2, Can.

EDITORIAL

The Teeth and Focal Infection



HERE appears to be some measure of doubt in the minds of many members of the profession as to whether non-vital non-infected teeth should be left in the mouth. Some dentists consider the determining factor to be whether there is a presence or an absence of symptoms of focal infection. The age of the patient is also considered a vital factor by many.

In reply to a questionnaire prepared by Dr. Elmer Best and covering these points, the following replies were received from Doctors Grove, Howe and Ivy:

Dr. Carl J. Grove—I would not extract any non-vital non-infected teeth either in the presence or in the absence of symptoms of focal infection.

Dr. Percy R. Howe—I should leave any number of pulp-

less non-infected teeth in any one mouth. I do not see how non-infected teeth can have anything to do with focal infection, nor do I see how age could make any difference. Should any pulpless teeth become infected, then I should cure the trouble or remove the teeth.

Dr. Robert H. Ivy—I would leave all non-vital non-infected teeth. In the absence of symptoms of focal infection, such teeth could not be responsible for symptoms of focal infection. I would leave them regardless of the age of the patient.

There is practically unanimous opinion to-day throughout both the medical and dental professions that focal infection is a causative factor in systemic disease and that the teeth and surrounding tissues frequently harbor such foci.

The time has long passed for discussion as to whether or not foci of infection about the teeth result in systemic lesions. There is no doubt about that. The practical problems confronting the practitioners are:

First: Is the tooth vital?

Second: Is the tooth infected?

The first question is much easier to answer than the second.

Dr. Theodore Blum frankly says: "I must admit that I do not know how one can determine, in vivo, whether a non-vital tooth is infected or not. It is my belief that, from a radiogram alone, it is impossible to determine the presence of infection." *Dr. M. B. Guthrie*, Lexington, Ky., upon the other hand says:

"The radiographic shadows should be the determining factor. Without evidence of destructive action in the apical region, no extraction should be done, whether or not symptoms of toxic absorption are present. The age of the patient should not influence the decision. Extraction of all non-vital teeth should not be practiced. A tooth that is subjected to traumatic occlusion, or one that has undergone a root-canal operation, or even extensive operative work on the crown will, in a majority of cases, show radiographically an increased width of pericemental line. As long as the line is even and unbroken, disease is not indicated."

The radiograph, while a valuable aid in diagnosis, should of course always be considered along with the clinical history of the case and a careful examination of the patient.

Mutual Aid

BY mutual confidence and mutual aid
Great deeds are done and great
discoveries made:
The wise, new prudence from the wise
acquire
And one brave hero fans another's fire.
—*Homer.*



G. MERRICK SINGLETON, D.D.S., TORONTO.

ORAL HEALTH

*A JOURNAL THAT STANDS FOR THE "OUNCE OF
PREVENTION AS WELL AS THE POUND OF CURE"*



Vol. 18

TORONTO, JULY, 1928

No. 7

A Symposium on the Management of a Dental Practice*

WILLIAM D. TRACY, D.D.S., F.A.C.D., HUGH D.
COMBS, ESQ., AND JUDGE MOSES GROSSMAN.
New York City.

CONTENTS.

- I. The reception and management of new patients in dental practice. William Dwight Tracy.*
- II. Safeguarding the dentist's interests from the legal standpoint. Hugh D. Combs.*
- III. Legal aspects of dentistry. Moses H. Grossman.*

I. The Reception and Management of New Patients in Dental Practice.

WILLIAM DWIGHT TRACY, D.D.S., F.A.C.D.



THE subject assigned to me is one which I feel is of vital interest to all of us. I have known instances of disharmony, misunderstanding, and dissatisfaction on the part of patients which might "easily" have been prevented or avoided by proper management on the part of the dentist in his contact with the patient. Such experiences as these are extremely disturbing to any conscientious practitioner, and in some cases may be detrimental to his professional standing; for it is quite true that a displeased or disgruntled patient

*Papers read at a meeting of the First District Dental Society of the State of New York, New York Academy of Medicine, March 1, 1926, and published by courtesy of the Journal of Dental Research.

is always more inclined to discuss his dental experiences than is the person who has had dental work completed to his entire satisfaction. Of course the fundamental and controlling factor in the relations that a real professional man has with his patients is his own conscience. The serious minded worker, who knows in his own heart that his patients' regard for him must ultimately be based upon honest effort in every detail of his treatment and procedure, enjoys a certain security, which, in the case of the man who takes his work casually, may be lacking.

No sane man boasts one hundred per cent. success in his dental work, nor can he expect the same degree of success in the management of all his patients. There are certain types of individuals whose personality, temperament, and mentality are such that even in the hands of a dentist of wide experience, mature judgment, and excellent self control, disharmony may creep into the relations existing between them before the work is completed. We expect to meet and successfully cope with all kinds of peculiarities, whims, and notions in our patients, but perhaps our most trying experiences are the occasional encounters with the apparently well bred and intelligent persons who turn out to be entirely unreasonable. When dentist and patient reach an impasse to further effort to understand each other, it would be better for both to discontinue relations. Fortunately such incidents are rare in a well regulated practice, but they may occur. One of the pleasant things about the conduct of what may to-day be termed an old-fashioned family practice is the feeling of friendliness and complete understanding and confidence that are extended to the dentist by a large portion of his practice. New patients who may come into one's practice must be taken care of, however, and I am asked to discuss ways and means of providing for this increment with the greatest satisfaction and least trouble to all concerned.

In a general practice in any large city it is safe to say that the three most constant sources from which new patients come are first, the satisfied patients already in the practice; second, dentists in other towns, cities, or countries who are glad to refer cases to the dentist in whom they feel confidence, and whom they may know personally or by reputation; and third, physicians and other dentists who may send patients for diagnosis, opinion, and advice.

In receiving new patients who come to us on the recommendation of other patients, it is usually not difficult to establish pleasant and satisfactory relations if the dentist and patient understand each other at the outset. In my own practice, on meeting new patients in this class, I hear their story, frequently minister temporarily to their discomforts, and suggest an appointment with one of my associates for prophylaxis and examination. If the patient is one who desires to come under my personal care, a chart is submitted to me, together with complete x-ray survey and plaster models where needed, as the diagnosis is the first important step in the case; appointments are made and, at the first sitting, time is taken to discuss the nature of the work required, and the probable amount of time needed; and toward the end of the talk the suggestion is offered that, if they are interested to have an approximate idea of the cost of the proposed work, it will be gladly submitted. Where the amount of work needed is small and the necessary sittings are few in number, the patients frequently ask me to proceed and render my bill for the services when completed. This is what may be termed the simplified procedure and usually works out satisfactorily in the end.

Where a patient has been negligent of the teeth for any one of the many reasons with which we are more or less familiar, and we find work of an earlier date that must be removed and done over to safeguard the future welfare and integrity of the teeth, the conditions become a little more complicated and a detailed statement of the situation is necessary. In such a case it is wise after a careful examination, with a complete x-ray survey and study models in hand, to explain to the patient in simple language just what conditions prevail and what steps may be necessary to restore the denture to normal efficiency or at least as near to normal as possible. All this can usually be made quite clear to the patient by the use of the hand mirror, the x-ray films, and plaster models. This conversation very frequently brings forth an inquiry as to how long the work will take and what the probable expense will be. I have found it desirable in most cases of extensive restoration to say to the patient that I would have to give the matter more study and that I would write to him giving details. This method gives the dentist an opportunity to make an approximate estimate in writing, of which a carbon copy is placed on file for later reference if necessary.

Some of our new patients show that they have always had a high type of dental service before coming to our offices, and with such patients there is usually no trouble concerning fees. Occasionally, however, a patient in this class may have had a competent operator in a small town or city, and been accustomed to fees much lower than those charged in the larger cities. If a question arises on this score, it is easily answered; and, if the patient decides that the work planned is beyond his or her means, it is better to have an understanding before than a misunderstanding after the work has been done. When we find in the mouth of a new patient work of an inferior quality, which has apparently been executed with lack of skill and with poor judgment, the situation becomes delicate, and must therefore be handled with tact and discretion. With perhaps very rare exceptions these cases can be negotiated without casting reflections upon the previous dentist or his work. There are many ways of explaining why the work must be removed and replaced without belittling or disparaging the man who inserted it.

My observations lead me to believe that many dentists do not realize how far reaching and how damaging a defamatory remark concerning another practitioner may be. For them it seems all too easy to criticise, to ridicule, and to condemn. I would urge such carping critics to remember that no worker, however skillful, in the field of dentistry, is one-hundred per cent. perfect, and that even the most competent operator may make errors in judgment and have failures in his handicraft. Would such a carping individual himself like to be condemned in wholesale fashion upon the evidence of one of his cases that had failed? I rather think not. I am not taking the attitude that we should commend or even defend crude and incompetent work, but I do feel that our conversation with patients should be of such a nature that, wherever humanly possible, they shall not discredit or bring into disrepute their former dentists. No doubt you are mentally asking how this can be done, and I will reply that a competent answer cannot be given in this short paper. To answer briefly, however, the statement may be made that the legitimate use of tact will go a long way toward meeting the requirements of most situations.

In a paper which I read in December, 1922, I defined tact as follows: "Tact may be described as that personal quality which enables the individual through an alert mental discern-

ment, or through intuitive appreciation, to realize what is fit and proper to do or say in any given situation. Tact in those who possess it, enables the individual to avoid saying or doing things that would offend or disturb another, and is based largely upon a sensitiveness to the feelings and an insight into the motives of others." A remark which might arouse in the mind of the patient a suspicion of doubt concerning the former dentist must be classed as a tactless act, and must be regarded as an unkindness to the patient himself as well as to the former dentist. Furthermore, loose comment made by one dentist concerning another, or adverse criticism in regard to the work of another, if occurring frequently, would result in injuring the standing of the profession in the public mind; and on this basis such activities on the part of the professional man are to be deplored.

One of the most perplexing situations we have to meet is that connected with patients who come to us on the recommendation of friends, stating that they have decided to make a change of dentists, and we find that the change has been made because the patients are dissatisfied with elaborate and expensive dental restorations. The conversation quickly discloses the fact that the patient is not only displeased, but that he is disaffected and is mentally irritated by a real or frequently an imagined grievance against his former dentist. In many instances such patients may be placated by explaining certain conditions with which they may not be familiar, and sometimes some adjustment or small change in the work may be effected that will improve the mental attitude. On the other hand, an occasional patient seems determined by the asking of leading questions to elicit a statement or comment that will directly or indirectly amount to a condemnation of the judgment or the handicraft of the previous dentist. With leech-like tenacity, and with a spirit of venom that is unmistakable, the patient may persist, thus taxing one's mental resources to meet the questions and give replies couched in a manner that will not involve the former dentist, and still will not disregard the truth. As a matter of routine it is wise to urge such patients to return to the dentist who did the work, and give him an opportunity to make some change in it or to do it over if necessary, assuring her that he will no doubt be glad to have the opportunity. This suggestion is usually rejected, but if the battle of words continues and gives evidence of developing into an unpleasant

situation, I would say to the patient that I fear that I would be unable to give him satisfaction and recommend that advice be sought elsewhere. This, of course, is an extreme case, but it is mentioned to bring out the point that I personally would rather lose a case regardless of its importance than to become entangled in an unpleasant situation that might involve a law suit.

Frequently we are called upon to treat patients who may be sojourning for some months in our city, but who have not severed their relations with the home dentist. In instances of this sort the main idea should be to administer such treatment as may be necessary to keep the patients safe and comfortable until such time as they may again place themselves under the care of their own dentists. This can frequently be accomplished by the use of cement or guttapercha according to the location of the cavity. If a year or more is going to elapse, however, before relations with the home dentist are to be re-established, and we feel that some type of permanent work is necessary to assure the safety of the tooth and proper protection of the inter-dental space, the situation should be carefully explained to the patient so that he will understand the reason for recommending permanent work.

After suggesting the use of a temporary expedient, patients frequently inquire whether the work cannot be done with a view to gaining a more permanent result and express a desire to have the tooth under consideration fixed with something more stable than cement or guttapercha. Under these circumstances we are justified in meeting the patient's request, but I consider it bad policy to recommend extensive work in the mouths of transient patients if it can be avoided, and it usually can be. I think it is impolitic, also, to place an extensive gold inlay in the mouth of a patient of this class who has never had anything but amalgam posterior to the first bicuspid, unless an understanding has been reached between patient and dentist in advance. Otherwise the patient might resent the perfectly fair fee charged for the work, and the home dentist might feel that the city dentist had taken advantage of his patient. Almost all such disagreeable incidents can be avoided by the use of good judgment and forethought.

When a physician sends a patient to our office we may have advance information from the doctor by telephone or letter explaining all the conditions that prevail, including the state-

ment that the patient has implicit confidence in his dentist, but the physician himself requests a thorough examination for the purpose of gaining a second opinion concerning some point of doubt. This is a clear cut proposition, and when the examination and diagnosis is completed, a typewritten report of the findings, together with recommendations for treatment, are submitted to the physician. In cases of this type both physician and patient may request you to take the case, and to clear up the trouble that gave rise to the consultation. Under these circumstances I take the position that the family dentist be advised that the patient desires to have certain work done elsewhere, and that she is not leaving his practice permanently but will return to him later. This can usually be arranged by the physician and patient, after which the work is done. Patients who come in casually, saying that they were advised by their physician to consult us for examination and treatment, are taken without question on the assumption that they have no dentist or that they desire to make a change. Now and then physicians send us patients in whom we find that, although the dental work in the mouth has been done with care and skill, an individual piece of work has failed, causing the patient some annoyance and discomfort. Under these circumstances I invariably advise the patient to return to his own dentist whose work shows that he is a skillful and competent man. The patient may urge us to administer the necessary treatment, but this should be refused. The patient may leave the office in an unpleasant frame of mind, but I feel that I have dealt with the case as I would wish a brother dentist to deal with a patient of mine should a similar circumstance arise.

Patients coming to us from other dentists usually are referred when there is difficulty in making a definite diagnosis, or when some special type of work is required. In the former instance, after a complete and careful study of the case, the patient is naturally referred back to his own dentist with all the information that has been gleaned, and with such advice and counsel as it may seem fitting to offer. In the case of the patient who comes to have some special type of work done, it is our duty, when that is completed, to refer the case back to the patient's own dentist. If the patient requests that other work be done, it is necessary to explain that definite arrangements had been made for certain work only, and that for the other operations needed the patient must return to his own

dentist. From my point of view consultations are desirable where doubt exists in an important case, and not infrequently I suggest to patients that a second opinion may be desirable. Sometimes the very suggestion of a consultation seems to bring about a change in the mental attitude of a patient who may be perplexed and worried about his dental situation, and he will say: "Well, doctor, I am perfectly satisfied to accept your judgment in the matter and have you proceed with the work." In other instances the patient will ask to whom he should go for a second opinion, and I am always glad to mention the name of one of my confreres whose judgment I hold in high regard. Consultation with the physicians who are in charge of our patients are frequently called for, and should be entered with a spirit of frank open-mindedness and generous co-operation, thus helping to establish that confidence and cordiality that should exist between medical men and dentists.

In establishing relations with new patients who are in serious dental trouble, it is well to maintain a spirit of optimism, while at the same time acknowledging the gravity of the situation. This is always cheering and helpful to both patient and operator. But beware of making extravagant promises about what is to be accomplished. We may help and encourage our patients in many ways, during the most disagreeable and disturbing period of our work, without committing ourselves too definitely to the attainment of an ideal result. We should have fixed in our minds, however, the picture of a result as near to perfection as it may be possible to achieve; and when the work is completed, and the patient is again comfortable and presentable, his satisfaction will be even greater than if we had made lavish promises in the beginning. And we will experience the comforting satisfaction that comes from the knowledge that our professional services have been well rendered.

Let us always remember that the welfare of our patients is paramount, and that what is best for them is in the end best for us. Let us not forget, also that a good reputation, as Mr. Otto Kahn has so well said, is something of our own making—that it cannot be purchased with money and that it cannot be inherited. While kept intact it works favorably for us, but unless well guarded may slip away from us overnight. Anything that tends to tear down or discredit the ethical standing of dentistry as a profession is to be deplored. Sensible ethical relations are helpful in maintaining the regard that the public will have for the profession.

II. Safeguarding the Dentist's Interests From the Legal Standpoint.

HUGH D. COMBS, ESQ.



THE malpractice situation, as it exists to-day, is far different from the standpoint of lawyers for the defendant dentist than it has been in past years. I want to bring to your attention particularly the fact that it is becoming somewhat less difficult for the plaintiffs in action to secure so-called expert testimony by dentists to be used against a brother dentist. I will not say that this has developed into a tendency, but it is something to think over, and to consider in the light of professional ethics. No lawyer, or insurance company, or society, wishes a dentist to perjure himself or say anything on the witness stand that is not true. But recently we have found that there are dentists willing to answer what we lawyers call "hypothetical" questions in a manner not in the best interests of the defendant in the case.

In the insurance company with which I happen to be connected, there are over 1,500 claims of malpractice against dentists in this city in the course of a year. About 225, on the average, go to suit. A similar proportion, varying each year, are finally taken to trial. None are settled, except those which have been taken up with the committee of your society. A large proportion of the cases are dropped, but a few of them result in verdicts for the plaintiff. These verdicts range from \$500 in the municipal courts to \$12,000 or \$15,000 in the Supreme Court. Fortunately, so far, there have been comparatively few in the last-named court. The cases that produce verdicts for the defendants are those, of course, in which the dentist is right. That class of cases includes so-called infections, broken needles, and broken teeth. Cases that bring verdicts for the plaintiff are cases involving the extraction of the wrong tooth, or extraction by a "strong arm method," bringing away a part of the alveolar process with the tooth. In broken needle cases, the dentist sometimes considers he has a secret to hide, or something to be ashamed of. Sometimes we have cases where a tooth is dropped down the patient's throat.

The cases that result in verdicts for the defendant—broken

needle cases—are those in which the dentist tells the plaintiff immediately that the needle has broken. There is no liability on the part of the dentist because an instrument breaks. Such an accident may happen to anyone. No one can tell just exactly what metal is contained in the fine steel needle, and the courts recognize that an accident of this kind is apt to occur. But the danger lies in the failure of the dentist to immediately advise the patient of the accident, and take proper precautions to help the patient, and have the needle or the broken part of it removed.

The infection cases are generally such as involve other diseases than those of dentistry—cases, perhaps, of blood diseases. The plaintiff in the case has a real or fancied grievance, which I will touch on after, and develops an infection in another part of the body, and a suit for malpractice results.

The broken-teeth cases may be classed in the same category as the extraction cases. They generally result in verdicts for the defendant. In cases where parts of the roots are left in the jaw, and are subsequently extracted by experts—the dentist having advised the patient that a tooth has broken, or some part of it is not there—a verdict can generally be obtained for the defendant.

A case where the dentist extracts the wrong tooth is a little more difficult proposition. From the standpoint of the defendant's lawyer, there are generally explanations which can be made for the extraction of the tooth. There is no liability against the defendant for a mistake in judgment. If, in his judgment, the tooth should be removed from the mouth, and he removes it, and a suit is brought, he need only justify his course by his experience, and the statement that in his opinion it was necessary to remove that tooth, giving the reasons therefor.

There are cases, however, where the wrong tooth is removed when it was the intention of the dentist to extract a different tooth. In this class of cases, it is absolutely fatal to attempt to put back the tooth after you have taken it out! Strange as this may seem, an interesting case, with which perhaps some of you are familiar, was tried in the New York Supreme Court about a year ago, in which a \$6,000 verdict was recovered against the dentist for the extraction of the wrong teeth, and in which an attempt was made to replace the teeth improperly extracted. Of course such an action is a clear admission of

mistake, and the substantial judgment rendered against this dentist was fully justified.

The law requires you to have ordinary skill and learning such as is possessed by other dentists in the locality in which you practice. You do not guarantee a good result. This means that your judgment is all that is required, and the result is problematical. If your judgment is good, you get the credit, but if it is poor, you should not get the blame. I have always considered that dentists were labouring under a handicap. In the medical profession, a doctor makes a mistake, he has the undertaker to bury it. If the lawyer makes a mistake, he tells the client the court went wrong, advises an appeal, and gets a larger fee; but if the poor dentist makes an alleged mistake, he is sued for \$50,000.

What are the ways of preventing suits for malpractice? One of them is to require—I say this as a lawyer (as Dickens would say, “as shouldn’t!”)—that the plaintiffs file a bond for costs when they bring an action in your Supreme Court. This would go a long way towards eliminating the enormous volume of litigation we now have, and would cut down the number of unwarranted suits which are brought not only against you as dentists, but against landlords and other persons with any capital. Secondly, as an insurance man, I cannot pass over the advantage, so far as your pocketbook is concerned, of carrying insurance. Thirdly, proceed slowly and methodically, and convince the patient that you are giving exclusive attention to him—that your sole interest at the time is the welfare of the patient. Do not tell the assistant to “order two tickets for the ninth row for the ‘Follies’ for to-night,” and at the same time revolve the disk or bur in the patient’s mouth. Do not go to the telephone two or three times to talk to your broker about the stock market. Do not do second mortgage business while you are making \$5 in extracting the patient’s tooth. The patient remembers this. While at the time the matter may appear trivial to you and to the patient, the idea remains in the patient’s head that you did neglect her, and had something else in your mind; and this sort of testimony is very harmful to you when it is rehearsed on the witness stand.

If anything happens, tell the patient. If you get into difficulty, or an emergency arises, do not be ashamed to call in someone whom you think knows more about it than you do. They may not know more, but you can convince the patient

that you got a better man to confer with you, and that you are doing everything in your power.

Keep adequate and careful records in your office. Nothing hurts your case more, or lessens the confidence of your lawyer, than to say: "Let me see—on the Fourth of July I went on my vacation, and then I went down to Gettysburg—I think this must have been about the middle of May." Sometimes claim is made against you although a diseased condition pre-existed on the date of your treatment, and we are at a loss in defending your case because of inadequate information. Know what you did to the patient, and when.

Keep your office clean. That is not necessary to say in 99 cases out of 100; but somewhere in this room there is one fellow who does not keep his office clean. I will not say who it is, but he guesses; and your lawyer has a terrible time trying to show how cleanly you kept your office, and the whole neighborhood perhaps has a different opinion!

Do not shell-shock a man by sending him a bill for \$400 when he thinks it is to be about \$27. Tell him how much the bill will be, and how long the job will string out, and then you will not have to hire some of the collection agencies that produce the malpractice cases. When you send out your bill for collection, and the patient thinks it is too much, he does not pay it. You place it in the hands of a collection agency or your attorney, who tries to collect it without suit. Finally he has to commence suit. As soon as the patient gets the papers, he goes to his lawyer, and the lawyer says: "There is only one defense, and that is malpractice." After you have waited around the court a while, you get disgusted, and want to quit, and sometimes the patient wants damages. You have done all the work and there is nothing the matter with your work. But like a snowball revolving, your troubles continue to grow as far as you are concerned; and, instead of feeling you ought to get about half the money you asked for, the patient decides that you should give *him* about twice as much.

Usually there is one important proposition involved in malpractice lawsuits, and that is the question of fact. The entire case is submitted to a jury. You tell your side of the case, and the patient tells his, and they are about as far apart as the North pole from the South pole. When you hear the plaintiff tell what you did to him in your office, you will not know yourself. Then, too, the judge does not know you, nor, for that

matter, does he know the plaintiff. The judge says to the jury: "I have nothing to do with the facts of the case—all I have to do with is the law. You decide the facts." All that means is: "whom do you like best, the plaintiff or the defendant? Whom will you believe? Who looked best on the witness stand?"

And that is where your personal appearance comes in. If you come to court, and do not look like a pretty good dentist, the jury may decide the case from the way you look. If you talk too much or too little, the jury will often decide your case on that basis. You can see what chance you have of being considered a good dentist, if you do not look the part when you come to court.

Finally then, use your best judgment, give the patient the best that is in you, use ordinary sound business sense in the conduct of your office, have regard for your own personal appearance, and you need not fear the result of malpractice lawsuits.

* * *

III. Legal Aspects of Dentistry.

JUDGE MOSES H. GROSSMAN, HONOURARY PRESIDENT,
AMERICAN ARBITRATION ASSOCIATION.



FOR some time I have been very deeply interested in the legal aspects of dentistry and the work of professional men as a class—dentists, doctors, lawyers, and ministers. They all subject themselves to hazards because of personal contacts with their patients, clients, and parishioners, and because of the fact that a trial in a court of law is public.

The Constitution provides that a trial is open to the public.

Therefore, a patient seeking to take advantage of his dentist or doctor, or a client seeking to take advantage of his lawyer, has only to make a charge of malpractice in order to scare the professional man. It is easy to start an action. It takes a lawyer only thirty seconds to draw a summons, and the process server then leaves the lawyer's Wall Street office for Harlem, or other destination, and the suit may be for \$100,000 for malpractice, assault, libel, or slander. No matter how innocent the professional man may be—no matter what the claim is—the law permits that facility of action. The professional man is

then put to the necessity of employing a lawyer and spending a large amount of time in protecting himself against this onslaught, to say nothing of being subjected to publicity and notoriety meanwhile. The best we can hope for is a verdict for the defence.

And yet, under existing law, it is impossible for anyone to sue a dentist or any other professional man, if he will but take advantage of the facilities the law provides for him. Not only that, but any disputes which do arise can be settled within a week or two by a trial under the law, but not a public trial. No one can be admitted to this trial unless both parties consent; otherwise the door is locked. The judges who preside at that trial will be leaders in the profession in which the dispute occurs. How can all this be done, you ask. I am going to tell you.

For a thousand years the professions of the bench and bar have battled with an apparently unsolved problem—the problem of delays and costs. Herbert Hoover says: “Next to war, the greatest single item of preventable waste in civilization is litigation.” When we eliminate this great item of preventable waste in commerce and industry we will give the prosperity of the nation a great boost. The average professional man, afraid of publicity, knowing the expense of having counsel, and the time it will cost him and his friends who are experts, and the possibility of an adverse verdict, is often willing to submit to extortion and blackmail because the odds are against him. That is going to be overcome by the plan I mentioned above, a practical, simple, concrete plan, which every dentist in this city can adopt—a highly ethical plan, which your counsel and associations will approve.

Under a law passed in New York State in 1920, any two men having a dispute which could be carried into a court of law, are now permitted by a simple little instrument in writing to say: “We agree to leave the decision of this question to Dr. Blank, Mr. John, or Dr. Doe, or to all three.” When these three take an oath to decide that question justly, something happens under the law. The law says to these men: “You now have substantially the same power to decide this case as if you sat on the Supreme Court Bench. You can subpoena witnesses and bring them into your private court. You can bring in books and papers and hear the testimony—not like a judge does, with objections, but in a commonsense

way, and you are not bound by rules, as a judge is—and you can render a verdict; and when you do, it becomes a verdict of the Supreme Court.” That is pretty good, is it not?

What is the method called, and what law places this simple and businesslike way of settling disputes at our disposal, you ask? The answer is that this method of settling disputes is called “arbitration,” and is provided for by the Arbitration Law of the State of New York, which was passed in 1920. Since then the Federal Government and five other states have passed similar laws. This arbitration law, which permits any dispute to be submitted to arbitration, also provides that when any contract is made for services by a doctor or a dentist, or for merchandise, in case of a future dispute, it shall be arbitrated under the New York law, and that the parties being bound by the covenant cannot sue one another in a court of law. They must go to arbitration, and if one refuses, the other may apply to the court for an order to compel him. The court says: “Did you sign this arbitration clause?” “Yes.” “Then name your arbitrator or we shall name one for you.”

Now you may say, “that is very good where you have a contract for merchandise—it is a written contract—but we are dentists, and we cannot have a written contract where we are delivering service and not merchandise. If you say to a patient: ‘Sign this contract,’ he may become suspicious and say: ‘Are we going to have a dispute?’” The answer to this is that most dentists have assistants who take the name and address of a patient and type them on a “history card.” An arbitration clause can be printed on the card, above the name and address, and the patient asked to sign instead of the assistant typing it, the signature being optional with the patient. If he does not understand the clause, or why printed on the card, you can point to a resolution which I am going to suggest you adopt and have copies placed on your office wall, or in your files, and explain to your patient the reason why it is mutually advantageous.

The resolution should be like one recently adopted, which reads as follows:

Be it resolved—*

*This resolution has been adopted by the First and Second District Dental Societies of the State of New York, since Judge Grossman made the speech from which this article has been prepared. Further information on this subject can be obtained by addressing the American Arbitration Association, 342 Madison Avenue, New York City.—(Ed.)

First: That it shall be deemed to be more professional and dignified for members of the Association of Graduates of the Angle School of Orthodontia to submit such disputes to arbitration rather than to enter into a public court trial over such disputes.

Second: That each member of said Society be urged to make every effort to agree with his patients to submit such disputes to arbitration, under the arbitration rules of the American Arbitration Association.

Third: That each member of said Society take such action as he may deem advisable to bring to the attention of his patients his belief in and adherence to the principle of arbitration; and

Fourth: That it is recommended that each member of said Society insert in all of his written contracts, or in his letters confirming business understanding reached with his patients, the following arbitration clause or one of similar intent: "In the interest of the retention of a friendly professional relationship, it is agreed that any dispute or claim arising out of or in connection with the dental services referred to herein, shall be settled by arbitration under the rules of the American Arbitration Association."

Focal Sepsis in the Mouth—Cause or Effect?



It is usual, nowadays, to take for granted that the mouth is always the malignant criminal, and that the general constitution is always the innocent victim. We all agree that this is often the case.

I think, however, it might not be out of place to produce for discussion the question as to whether the roles are not sometimes, in the first place, reversed, and that the mouth is only driven to crime by the very thing, the constitution, which it eventually damages. In other words, the mouth is the unwilling victim of circumstances. The constitution forces the mouth into unlawful ways, and the mouth receives all the blame for the results.—GEORGE H. WEBB, L.D.S., ENG.

Immunizing Both Hard and Soft Mouth Tissue to Infection by Correct Stimulation With the Toothbrush*

W. J. CHARTERS, D.D.S., DES MOINES, IOWA.

IN an examination of the employes of several large department stores in Boston, Dr. Emmons, of Harvard University, found very few persons having clean mouths. The proportion was one to five. His figures referred to clerks in department stores, but the probability is that the figures have a general application.

About half of the people referred to by Dr. Emmons had what he called "fair" mouths. The persons in this group needed to have their teeth cleaned and polished and to have some fillings and extractions. Nearly one-third who had what was called recurring toothache were in the third group.

There was a time when the only way to handle a decayed or defective tooth was to pull it out. Then came the period of filling repairing. To-day, we are in an era of preventive dentistry, when the most important dental procedures are cleaning, and the use of methods planned to produce sound teeth and to save them, rather than to repair them or provide substitutes after irreparable damages. In such preventive work, I believe that we are beginning to appreciate what the toothbrush can do more than we have ever done in the past.

The modern toothbrush may not be perfect, but its present status is a matter of evolution from the "chew stick." One end of a wooden twig was beaten to a soft, fibrous condition in those days, and the primitive brush was ready for use.

The morning ablutions of a native of India are never complete unless the teeth have been cleaned and the mouth thoroughly washed. No food may be eaten until the ceremony is over. However poor the Hindu may be, a bundle of little white sticks is kept on hand and one is withdrawn each day to be used for scrubbing the teeth. Once used it is thrown away, and it is always broken in two before being discarded so that it will not be used by anyone.

Some negroes in an "African village" were observed cleaning their teeth with such an instrument. They carried a small

*Read before the Section on Peridontia at the Seventh International Dental Congress, published by courtesy of the Journal of the American Dental Association.

supply of them secreted in some fold of the clothing, and it would seem that they were busy cleaning their teeth when not otherwise employed. Their teeth were beautifully white, and no decided recession of the gums or pyorrhœa could be noticed.

This early toothbrush has a number of good points. A positive pressure can be applied, and the fibrous end is so soft that the gum can be given a gentle massage. It is so cheap that it can be used and thrown away, and this is ideal from a sanitary point of view. However, it can be used only with the up-and-down movement and does not get into the interdental spaces and deep fissures, and I believe that these places are really the most important of all in preventing disease of the gums and teeth, the most common ailment of modern man in particular.

Of all the diseases with which mankind is afflicted, the most prevalent are diseases of the gums and teeth.

Pathologic conditions have always, to some extent, been present in the mouth, but unlike many other diseases which have diminished in severity in modern times, mouth conditions, in our time, have been growing steadily worse. It is my opinion that more good can be accomplished by the dentists, in this present age at least, in teaching patients how to clean the oral cavity correctly, than dietitians can possibly accomplish in trying to regulate the diet to such an extent that the toothbrush will not have to be used nor will it be considered a necessity.

One of these two systems must be perfected and results attained, before the people will be relieved of many diseases from which humanity is suffering. It is not my intention to discourage the teaching of proper diet; but it is a much easier task to teach a correct method of brushing the teeth than it is to wean the average person from his taste for jam and French pastry. Therefore, let the dental profession take another step forward, banding together in the great cause of teaching real preventive dentistry, in the sense that the patient will be made to realize the necessity of returning for examination in six months time, and when these patients do return, after faithfully brushing the teeth in the manner, I will show, with the aid of slides, that their mouths will be in practically perfect condition; and we can truly make the statement that they have graduated in the art of mouth hygiene. This is no longer a question but a decided fact,

It has been said that a clean tooth never decays. This sentence was cut too short, in that it should have added "and stimulated gums never show pyorrhœa, owing to the fact that pyorrhœa and decay do not go hand in hand."

People who are free from tooth decay are led to believe, after reading the phrase, "a clean tooth never decays," that they are free from mouth ills, when, if the truth were known, they are in more serious condition than if they had some decay. One of the most treacherous characteristics of pyorrhea is that in 95 per cent. or more of cases, no pain is present, with the result that the first examination reveals an unsuspected and serious condition. The stimulating of the gums that is accomplished with the bristles in ordinary brushing does not have the required effects.

About twelve years ago, I started to work on a method to teach my patients how to keep their mouths cleaner. The reason that first prompted me to work out this theory was that my patients would return in six months or a year with their mouths in an unhealthy a condition as they were when first examined, and my work seemed to be in vain. I procured an artificial set of teeth, a toothbrush and some vaseline, which I coloured black, and plastered the interproximal spaces with the colored vaseline. I then attempted to remove it by using the up-and-down motion. In making this test, I proved absolutely to myself that it was impossible to remove the vaseline from between the teeth. Then I tried the next method in vogue, the big circle, or rotary method, with results that were not so good as in the first test. After studying a short time, the thought came to me that to clean a surface the cleaning instrument must come in contact with that surface. Taking my brush, I pushed the bristles straight in between the teeth and then further in with a small rotary or vibratory motion, and very soon I was convinced that I was obtaining results.

In the last test, I learned that I could stimulate the gums with the sides of the bristles. I also learned that the brush does not remove mucin from the mouth without thorough rinsing.

The next, and most important step, was to try the method. Using my own mouth as the subject, I was immediately convinced, when I pushed the bristles in between my teeth, that my brush had touched parts of my gums that had never felt a bristle before.

While brushing is effective as a cure, its merit is in real prevention, and our patients will have greater respect and confidence in our work when we have taught them that most all teeth surfaces can be cleaned with a toothbrush and that the most of the brushing being done nowadays touches only the high spots, where decay seldom starts. The attention of the patient should be called to the fact that there are five surfaces to every tooth that should be brushed, mesial, distal, occlusal, buccal and lingual. The average person brushes two surfaces, namely, the buccal and lingual, and firmly believes that he has done a perfect job, when in reality he has not even started. The majority of people have learned incorrectly how to brush their teeth through instructions from the platform and toothbrush drills, or by reading toothbrush or tooth paste advertisements.

Removing sensitive conditions arising from exposed roots is easily accomplished by this method of brushing, and this is one of the very difficult conditions we have to contend with. The most sensitive tooth surfaces can be desensitized in a few minutes, and in an hour the same sensitive condition will return and will continue to return after each brushing for a few days; but in three or four weeks, most of the bacteria will have been eliminated, the resistance of the remaining bacteria is on the wane, the acid begins to weaken, and the dentin, which at the start was hypersensitive, is rendered insensitive to the touch of a steel instrument. I have cured many cases with no other instrument than the toothbrush.

I have had cases of muscular rheumatism that have been cured by brushing only, and there are cases on record where eczema has been made to clear up, and many cases of beginning pyorrhea have been eliminated. That tired feeling is, of all other conditions, the easiest handled. I find that cases can be treated effectively in two weeks' time.

Several years ago, Madam Montessori originated a method whereby small children could be taught to feed themselves, sew, in fact do everything mechanically correctly. She has made a wonderful success of this method, and many of her theories are being used in educating the small children to-day.

Now, if children can be taught to do these things correctly, then they can be taught to brush the teeth correctly. And I ask you, who say that it is impossible to teach children this method, just to give it a free trial, using normal children for

your subjects, and you will find that, in most cases, they respond and learn the method much more readily than do adults.

Some will perhaps say that they are afraid that this method will cause undue recession of the gums. I have examined the mouths of hundreds of children and have never yet seen such a case.

You cannot drive the tissue from the palm of your hands, or the soles of your feet. Nature cares for this and builds resistance in the tissue to withstand any pressure applied.

The big circle method is half way between the horizontal motion and the up-and-down. The horizontal motion is more effective than the up-and-down motion, as shown by tests made on artificial teeth.

THE ORTHODONTIC CASE.

In orthodontic cases, a more or less mechanical appliance is used. Is it possible to stimulate the gum margin, and clean the teeth under this appliance with the up-and-down or the large circle method?

These children have a fine opportunity to be taught the home care of the teeth as they make many visits to the dental office before their case is completed. If the method that I am presenting is ideal for these mouths, it must be ideal for any other condition, either normal or subnormal.

Every local patient who comes in for pyorrhea treatment is required to take a two weeks course in brushing before cureting is started. A urinalysis is also made at the first sitting, and if trouble is located, the patient is informed of the condition and is told to visit the family physician. The patient is also instructed to bring two toothbrushes to the dental office. One is returned to him for home work, and the other is placed in a large test tube, which is labeled and dated, and is kept in the office for brushing and demonstrating. Appointments are made with the patients for every day, if possible, or at least every other day. The nurse who gives the lessons consumes about ten minutes in brushing and ten minutes in instructing the patients how to manipulate the brush.

The disclosing solution is used to show the patient the surfaces that they may be missing.

THE METHOD.

Place the brush at right angles to the long axis of the teeth,

the points of the bristles in contact with the surfaces; then gently force the bristles between the teeth, being careful not to pierce the gums, that is, do not allow the points of the bristles to rest on the gums. With the bristles between the teeth, exert as much pressure as possible, giving the brush several slight rotary or vibratory movements, causing the sides of the bristles to come in contact with the gum margin and producing an ideal massage. Be careful not to make this movement sufficient to remove the bristles from between the teeth. After making three or four small circles, remove and replace in the same area. Make three or four applications in the same place. The reason for this is that the points of the bristles strike the labial, buccal and lingual surfaces, then slide into the interproximal spaces. Move the distance of one embrasure and repeat the process, holding the sides of the bristles firmly on the gum margin. The V-shaped spaces between the teeth assist in crowding the sides of the bristles against the gingivæ. Where teeth are missing, we have to depend on our sense of touch to keep the proper pressure, with the sides of the bristles on the gum margin.

Be sure to enter every embrasure from both the outer and inner surface on both the upper and lower teeth. Most of the third molars, which, because of the close proximity of the ramus of the jaw and the soft tissue in that region cannot be approached at right angles, must receive more careful attention, and the brush should be tipped so that the bristle ends reach the outer and inner sides. Third molars in proper alignment and occlusion can be saved as long as any other teeth if they are kept as clean.

Last, but very important, remember, do not brush the chewing occlusal or grinding surfaces with a sliding or sweeping motion, but place the brush directly on this surface, then gently force the bristles into the pits and fissures, giving a slight rotary movement. Remove and repeat until the entire chewing or biting surface has been brushed.

When the teeth have been thoroughly brushed according to the method that I have just described, the next important point for consideration is proper rinsing of the mouth. The brush removes very little food accumulation from the month. The film, with the aid of saliva, forms a liquid that fills the fissures and embrasures.

It is important that this so-called accumulation of waste food

be washed out of the mouth. After taking a mouth full of water of body temperature, with the teeth and lips occluded, the water is forced back and forth through the interproximal spaces with as much pressure as possible. An abundance of water is used for this purpose, the idea being to wash the bacteria out of the mouth, rather than try to destroy them in the mouth by an antiseptic.

THE BRUSH.

The brush should be seven eighths inch from the heel to toe and five-sixteenths inch in width, and the bristles one-half inch in length. The tufts should be separated from each other about the width of the tuft. The top of the tufts should be saw shaped. The handle of the brush should be $7\frac{1}{2}$ inches in length and made rigid, preferably of bone. The fine Russian bristles, which we are not able to procure at the present time, are by far the best. We are forced to use a coarse bristle, as this method is hard on the bristles, especially in the hands of the beginner. Many families using this method of brushing their teeth have had one member instructed in a dental office, and on his return home, he has become a teacher for the other members of the family.

Practical demonstrations in the mouths of dentists serve best to make this method clear. Real experience is the best teacher and makes the most lasting impressions. Several lessons will be necessary to teach the proper use of this method. After the first lesson, I am sure that you will be convinced and brought to a realization of the value of this method.

After a few years of uphill work, I organized the Des Moines toothbrush clinic, which has given demonstrations at five national dental conventions, several state and numerous district meetings. If each district dental society would organize a toothbrush unit, we would be able to reach all the dentists in a comparatively short time. Would it not be worth the effort?

The method is not an experiment. I have been teaching it to my patients for years, and there is no other one thing in my practice that has given me such lasting and genuine satisfaction as the pleasure of having my patients come back year after year with clean teeth, and beautiful pink, hard gums. It is worth more to me than money, and I earnestly advise that you make the teaching of this method to your patients a part of the routine of your practice.

Mouth Hygiene and Public Health

C. ALVIN SNELL, D.D.S., TORONTO.

[Members of the profession called upon to address lay audiences on the subject of Oral Hygiene will find in this article much of value for quotation of authoritative facts showing the great value of mouth health.—Editor.]

OBJECT.

T is the object of this article to show that all public work in mouth hygiene is but a part of the general health programme and that such work is a community responsibility. It is written for the layman, and is compiled for the purpose of giving, in a comprehensive and concise form, material for public presentation.

THE NEED.

The New York Medical Journal, in a recent issue, said editorially, "So far as we have been able to judge from medical history, the teeth of mankind were never in such bad condition as they are at the present time. Certainly the man, or group of men, who will start something that will make tooth conditions better will confer a great benefit upon mankind."

Proof of the prevalence of dental disease is less necessary now than it would have been fifteen or twenty years ago, but a few statements of typical conditions will lead the reader to more intelligently appreciate the urgent necessity from the standpoint of national welfare of combatting such disease.

The examination of approximately 2,500 rural school children by United States Public Health Service revealed 49.3 per cent. of the children with two or more decayed teeth.

In a report of a recent and very extensive survey of the mouth conditions in the State by the North Carolina State Board of Health, it is stated that 75 per cent. of the children examined evidenced decay of the teeth, and less than ten per cent. of them had ever visited a dentist, and that 90 out of every 100 parents had never made any attempt to have the dental defects of their children corrected.

Among 7,059 children examined during a recent investigation of mouth conditions by the Public Health Service, 1,882, or 25.81 per cent., were found to have lost one or more of the sixth-year molars. Because this tooth is the first perman-

ent tooth to appear, and as it erupts back of the last temporary tooth, it is frequently mistaken for a temporary tooth. This is nothing short of a calamity. Not only does the loss of the tooth mean a loss of masticating surface, but the tooth also determines to a considerable extent the relative positions of the other permanent teeth. Forming, in a manner, the key-stone of the dental arch, with its loss this arch collapses to a greater or less degree, markedly modifying the facial symmetry of the developing child, and leading in later years to diseased conditions of the supporting structures of the teeth.

Reports indicating conditions similar to those just given could be multiplied indefinitely. It is perhaps sufficient to add that dental inspections of the mouths of school children in all civilized countries invariably reveal that from 50 to 90 per cent. of these children are in need of dental attention.

Turning to a somewhat older class of students, Dr. Harold J. Leonard of the University of Minnesota, reports that "in a study of 1,468 University of Minnesota students entering as freshmen, 284 were found with definite gingivitis (inflamed gums), 73 with moderate dental periclasia (so-called pyorrhœa), and 19 with advanced or severe pocket formation.

It has been definitely proven that disease producing germs can be transmitted through the circulation and lymph tracts to remote parts of the body, and thus set up independent disease reactions, and also that an unclean mouth is a most prolific breeder of the infectious type of germs, and is, therefore, a constant menace to the health of its possessor. Imbued with the responsibility which this knowledge imposed, the dental profession has conducted, in a number of communities, a mouth hygiene campaign, and everywhere that a practical application of the doctrine that a clean mouth means better health, has been made, the results obtained have fully justified the most sanguine claims made for it.

DENTISTRY'S CONTRIBUTION TO PUBLIC HEALTH.

The benefit to the individual that results from the possession of a clean, healthy mouth is fairly obvious, but of equal importance, but perhaps less widely known, is the contribution which dentistry has made to public health in the lessened incidence of infectious diseases.

Cordelia O'Neill, a school official in Cleveland, reports that, in Cleveland, the director of the school dental clinics made a study of the incidence of scarlet fever and

ORAL HEALTH for July, 1928

diphtheria in each school district in the city. He then made a comparison of the incidence in the schools in which clinics were established, with that in the schools which did not have that service. There was a noticeable degree of immunity in the schools in which hygiene was taught and practiced."

Similarly in Bridgeport, Conn., reports by the city board of health indicate that there has been a very considerable reduction in the incidence of communicable diseases in that city during the period following the establishment of school dental clinics in the year 1914. During this period diphtheria showed a decrease from 26.6 per cent. to 18.7 per cent., measles, 20 per cent. to 4.4 per cent., and scarlet fever from 14.1 per cent. to 0.5 per cent.

The effect of the general application of dental measures, both preventive and operative, in the schools of Bridgeport in bringing about a reduction in the amount of communicable diseases, may be questioned by reason of the fact that the incidence of the communicable diseases in the general population varies from year to year. However, the general inference of the decline in the percentage of communicable diseases in Bridgeport *pari passu* with the extension of dental work in the schools is strengthened by a report of the improvement in the percentage of communicable diseases following the employment of a dentist and systematic dental service in St. Vincent's Orphanage, Boston, Mass. The average number of children in this institution during the period of observation was 325, and the work was in progress from April, 1912, to November, 1913. A comparative record of the health conditions for several years immediately preceding the employment of a dentist and during the period of service is quoted as follows:

DISEASE.	PERIOD.							
	May	May	April	Nov.				
	1913	1912	1911	1910	1909	1908	1907	
	to	to	to	to	to	to	to	
	Nov.	May	May	Apr.	1910	1909	1908	
	1913	1913	1912	1911				
Diphtheria	1	0	0	0	1	2	16	
Mumps	0	0	0	4	10	3	8	
Scarlet fever	0	0	0	8	12	8	17	
Pneumonia	0	0	0	6	4	5	3	
Measles	6	0	0	25	40	50	24	
Tonsillitis	0	0	0	3	8	16	19	
Whooping cough	0	0	0	0	2	2	7	
Chicken pox	0	0	0	6	10	17	15	
Typhoid	0	0	0	0	0	0	0	
Croup	0	0	0	0	0	0	4	
Tuberculosis, eye	0	0	1	0	0	0	0	
Tuberculosis, lungs	0	0	1	0	0	0	0	
Total	7	0	2	52	87	103	103	

(Mouth hygiene—Fones, p. 466.)

THE ECONOMIC ASPECT.

A mouth hygiene programme is of interest to the taxpayer, because its application is an economic gain.

Recent reports from Bridgeport, Conn., show that every child in the public schools was promoted from the fifth to the sixth grade, while in the past an average of retardation of 40 per cent. was not uncommon.

Those who are familiar with the present day educational system recognize the seriousness of the problem of "repeat" pupils, this phase of the educational work comprising from 20 to 40 per cent. of the entire school budget. In the city of Philadelphia the records show that 15 per cent. of the school children are "repeaters," and the cost to the city for each school year repeated is \$82.00 per child.

Dr. Fones, in Bridgeport, has shown the definite reduction in cost of repetition in the Bridgeport schools to be from 42 to 17 per cent.

OPINIONS OF SOME COMPETENT OBSERVERS.

In view of the foregoing, it is not therefore surprising to find that those who are most familiar with the practical results of the application of mouth hygiene are its most enthusiastic supporters.

Michael M. Davis, Executive Secretary of the Committee on Dispensary Development of the American Hospital Association, after a very comprehensive survey of public dental service, says, "I believe that no phase of health work is more important to community welfare and public health than is community dental service," and again, "A dental programme for children is part of the general child health programme. It should never be forgotten that the medical centre of the child health programme is not the dentist, but the pediatrician."

The President of the Babies' Hospital of Philadelphia, in his annual report for 1922, after a brief observation of the results obtained from a limited dental clinic in that institution, states, "It would be difficult to overstate the possibilities for good that a mouth hygiene clinic may render. It not only preserves the teeth, and reduces mouth infection in the little patients with whom it deals, thus greatly lessening the likelihood in the future of indigestion, of rheumatism, and of heart, kidney and artery disease, with all their resultant inefficiency

and distress, but it inculcates habits of cleanliness, and instills pride in personal hygiene."

Dr. Hastings, Medical Health Officer for the city of Toronto, Ontario, recently made the following recommendation to the Hospitals' Commission:

"As the dental clinics established and conducted by the Health Department in the various city hospitals have fully demonstrated the necessity of this particular service, and inasmuch as the time has now come, in the light of modern knowledge, when hospitals, and the medical profession generally, fully appreciate the important role played by defective teeth, diseased teeth and gums, so far as diseased conditions of the body generally are concerned, consequently, in my judgment, dental clinics should constitute a part and parcel of the general routine clinic teachings and administrations of every hospital just as positively as do the special branches of ear, nose and throat, etc."

In this recommendation the Hospitals' Commission fully concurred.

MOUTH HYGIENE AS A BRANCH OF PREVENTIVE MEDICINE.

Important and beneficial as are curative and reparative dental services, the ultimate success of the Mouth Hygiene movement demands a more forward step. All indications point to the fact that we are dealing with a nutritional problem.

Nearly every country has awakened to the importance of mouth hygiene. In England to-day there is a movement of national magnitude well under way, which is a result of investigations conducted by a parliamentary committee. The conditions revealed by this investigation were so startling that remedial measures have been adopted with the object of benefiting all the people.

In New Zealand there has been formed a national bureau of mouth hygiene, with a director and a corps of assistant directors, who will care for the mouths of all the school children at government expense.

In the United States we find that several of the States have State bureaus of mouth hygiene, under the direction of their health departments.

In Canada there has been organized The Canadian Dental Hygiene Council as a result of a national public educational

movement for better hygienic conditions in the oral cavity. In this movement prominent Canadian laymen are taking a leading part. Dentists are members of the Council, but the organization is primarily a laymen's association. The Council appointed a committee to lay the claims of the Association before the health authorities in Ottawa, with a view to obtaining a Federal grant similar to those given other like associations. This development will place oral hygiene upon precisely the same basis as other departments of hygiene, and as an integral part of the Canadian public health movement.

Further recognition that the providing of dental service to the needy is a community responsibility was furnished on Thursday, Jan. 12th, 1927, when a deputation waited upon the Ontario Government seeking a provincial grant for this purpose. The significant feature of this incident lay in the fact that laymen were members of the deputation, and that one of their number was the spokesman for the occasion.

In substantiation of this broadening conception of mouth hygiene, consider the statement of Sir Leslie Mackenzie, Member of the Scottish Board of Health, and Crown Nominee for Scotland of the General Medical Council:

"The administrative problem facing a public dental service is now capable of being stated in general terms. Such a service must be related to the work of general medicine. It must take account of the pre-natal nutrition of the child. It must also take account of the nutrition of the suckling, and this means also the care of the nursing mother. With these basic problems well provided for, a dental service could work marvels in our community within a few years, but let it be laid down with emphasis, that the care of the teeth involves the care of the whole organism from conception to adult life."

Dr. E. A. Grant, Director of Dental Services for the city of Toronto, says in a report:

"No school dental service can hope to overtake its problems without some supervision of the child before entering school. That pre-natal conditions are most important is evidenced by the fact that the first teeth commence to develop about six months before birth. The work covered in this report represents a contribution to the welfare of the community which would be hard to value in dollars and cents, but those who are in daily touch with school life, and see the improvements in mouth conditions and general health bringing an increased

self respect and keener mental effort, consider it as something more than worth while."

SUMMARY.

The need of dental service is overwhelming.

Dental clinics have indubitably proven their value in the field of preventive medicine.

Every child is as much entitled to every possible health activity in its behalf as it is to an education.

Continuous financial support is essential to the success of all health activities, and public expenditures along such lines are an economic gain.

Eminent laymen and health authorities are agreed that nothing less than a public programme of national magnitude and of preventive character is equal to the stupendous nature of the task.

Removal of Vital Pulp

J. R. BLAYNEY, B.S., D.D.S.

HE principle reasons for pathological processes following pulp removals are: the introduction of outside injection; the extensive traumatization of the remaining tissue by careless handling; the use of irritating drugs. These three major sources of injury must be kept in mind through every step of the operation; the amputation of the pulp must be conducted in the same manner as the removal of any other portion of the body. The canal should never be opened except under aseptic conditions, and the pulp should be anæsthetised, and not destroyed, by caustics. By using arsenic trioxide the soft tissue within the apical ramifications of the canal, or even the periodontal membrane in the immediate vicinity of the pulp, may be destroyed. The preferable method is some form of local anæsthesia. In determining the point of amputation, see to it that the site of operation is within healthy tissue, and that the remaining vital stump will have a sufficient blood supply. Since it is impossible to determine clinically how far pathological changes have progressed toward the apex, it is considered good prac-

tice to strive to sever the pulp near the dento-cemental junction. This is the region of accessory apical openings which affords an abundant blood supply, if the soft tissue contained therein has not been destroyed by caustics or infection during the operation. The presence of many apical ramifications is an aid to pulp removals rather than a hindrance.

Following the amputation, a dressing of some mild antiseptic or obtundant, such as eugenol, is placed, and the canal is not opened up until sufficient time has elapsed for the partial healing of the remaining stump, usually four or five days. In very small and inaccessible canals, the amputation should be as high as possible. During the subsequent enlargement of the canal the remaining vital tissue should not suffer from mechanical trauma. This is very important, because it is from this soft tissue that repair takes place following treatment. During the inflammation which follows pulp removal, it is not uncommon to find irregular resorption of the lateral surfaces of the canal by cells that are usually found at the site of low grade irritations. Clinically, there seems to be no way of telling how far this process of resorption will progress.

The factors that appear to be determinative as to whether healing will take place by calcification, or by continued resorption, are directly under the control of the clinician. These are, freedom from infection, excessive mechanical trauma, tissue destroying drugs, and traumatic occlusion. Calcification appears never to take place in the presence of infection, and, when the fragments of soft tissue which remain in the apical portion of the canal are unnecessarily injured, an increased burden is placed upon this tissue. The clinician should reduce all forms of trauma to a minimum.—*The Dental Record*.

The Wearing Quality of Dental Filling Materials

 HE ideal dental filling materials must, of course, stand up under mastication. In other words, while it should wear as well as the teeth, it should wear no better. It is never justifiable to add platinum to gold that it may be hard enough to prevent wear. Filling materials should wear as do the teeth themselves, that normal occlusion may be maintained and occlusal trauma avoided.

The Relation Between the Diseases of the Eyes and Teeth*

BY CLAUDE MORLET.



WHILE very sensible of the great compliment you have paid me to address your Society, and while realizing to the full the very great privilege entailed in being present at your meeting this evening, it is with considerable diffidence that I endeavour to speak to you on the subject which has been allotted to me, and this for two reasons. Firstly, the consciousness of my own abysmal ignorance of the science of dentistry; and, secondly, the suspicion that, to many of you, much that I will tell you will be already familiar.

The influence of a localised morbid process on the constitutional health of the individual is, of course, the fundamental principle of medical science.

The site of election of the pneumococcus is the lung; the bacillus typhosus, the small intestine; the bacillus of diphtheric, the throat and larynx. Yet in all these and similar infections the constitutional prostration is due to dissemination throughout the body of the toxin or poison of the particular germ concerned. One single organ is attacked and diseased, but absorption therefrom causes the collapse of the entire constitution. In these familiar maladies, where the site and nature of the attack is so obvious, there is naturally no difficulty in identifying the origin of the general prostration.

The problem is not so simple when systemic infection exists, and a careful examination fails to disclose any localised morbid process, or any definite organ which is bearing the brunt of the attack.

Here we are compelled to institute an elaborate search for some obscure septic focus, whence originate the toxins with which the circulation is obviously teeming.

And now we fall back on our learned colleagues, the dentist, the rhinologist and the radiographer, without whose assistance we would find ourselves utterly at a loss.

It is to be my object to-night to consider merely these condi-

*Read before the Odontological Society of Western Australia and published by courtesy of the Australian Journal of Dentistry.

tions that illustrate the very close connection which is found to exist between oral sepsis, and morbid conditions of the teeth, with certain diseases of the eye.

In the first place, I should just like to comment upon a phenomenon which must have appealed to you all—namely, the remarkable frequency with which your consultants seem to be either an orthopædic surgeon, or an oculist.

Of all the organs which appear to suffer from infection, the source of which is ultimately sheeted home to the teeth, perhaps the joints and the eye are most sensitive. It would appear that the particular strain of organism most frequently associated with oral sepsis and septic foci in relation to dental roots, generally one of the strepto-pneumococcal group, has a peculiar predilection for highly-differentiated mesoblastic tissues. It is the mesoblastic tissue of joints, the highly-differentiated synovial membranes, and periarticular tissues, which are the earliest victims of infection, and it is almost exclusively, we find, the structures of mesoblastic origin in the eye that bear the brunt of the attack. Perhaps the body contains no organ in which mesoblastic tissue is so highly differentiated as in the case of the eye.

Considering the enormous amount of oral sepsis and septic dental trouble of every description which daily passes before your notice, you will surely be struck by the relatively very small amount of constitutional trouble which results. It is well to remember that pathogenic organisms may exist in the body without giving rise to disease, owing to the existence within the body of such protective faculties, as acquired immunity. In spite of the fact that a septic focus can be found in 80 per cent. of the mouths of patients casually examined, it has been observed that barely 10 per cent. of this number suffer any grave systemic involvement therefrom. To quote David Harum, "A reasonable amount of fleas is good for a dog; keeps him from brooding over being a dog."

So far as the mouth is concerned, the term infection must always be regarded in a relative sense. During life micro-organisms are never absent from the oral cavity, and their presence does not necessarily imply the existence of a pathological condition. In the case of the teeth, no matter how minute the cavity, every carious tooth is an infected tooth. In fact, Mr. A. P. Moore, B.D.S., of Adelaide, goes so far as to say that every dead tooth is an infected tooth.

The problem before us is to decide as to when the focus of infection becomes a menace to general health, and this is mostly dependent upon the decisive powers of the patient himself. And so it is now generally recognised that modern dentistry is a most important branch of medicine and surgery.

And now to consider disease of the human eye. To begin with, the eye is an intensely vascular structure, in which blood vessels are for the most part extremely minute, and coursing through most delicate membranes, lack any firm support. They are, therefore, capable of rapid and extreme dilatation. A ready illustration of this is found in the case of the vessels on the surface, in the conjunctiva or membrane covering the sclera or white of the eye, and the loose tissue immediately beneath this, known as the episclera. In health these vessels are scarcely obvious, and the surface of the sclera is uniformly white. It only requires some slight local irritation, such as impact of a foreign body, to produce extreme congestion of the surface, and we have a bright red membrane in place of a white one. The conjunctiva is a membrane which is differentiated from the skin of the general body surface, and is therefore an epiblastic structure. Rarely, if ever, is it influenced by a septic focus elsewhere in the body. The episclera, on the other hand, which lies beneath, is intensely sensitive to such influences.

Quite common are distressing cases of recurrent episcleritis, with sudden and violent flushing of the white sclera, the origin of which has ultimately been sheeted home to a septic focus at the apex of a dead tooth. Such cases usually clear up dramatically and permanently after removal of the septic focus.

Within the eyeball itself certain important and delicate structures are found to be intensely sensitive to infection from a distant focus. The cornea, iris, ciliary body and choroid are liable to acute, subacute and chronic inflammations, painful and most destructive to vision. The transparent vitreous humour may contain floating flecks of opaque fibrin which impair its transparency. In some cases the origin of these infective conditions is obvious and clear. In many, however, the etiology is quite obscure. It is then necessary to search for a focus, and the practice invariably is to inquire into the condition of the teeth. Without obvious disease of any part of the eyeball, one frequently comes across depression of func-

tion. The focusing power may be inefficient. The co-ordinate movements of the eyes may be ataxic. There may be an unexplained impairment in function of the optic nerve itself. Where no obvious cause is found, inquiry into the condition of the teeth may disclose the existence of a septic focus. One frequently finds a return to normal function upon elimination of this. It must be assumed, in these cases, that, without actual inflammatory reaction, function has been impaired by toxic absorption.

There may occur certain reflex neuralgias of the second or third divisions of the fifth cranial nerve, resembling in many respects the true tic douloureux, especially in a sudden onset of intense pain, lacrymation and prostration of the patient. It is frequently found that removal of an unerupted third molar, or elimination of an apical abscess, completely relieves this very trying condition.

This brings me to another aspect of the subject. I have seen patients suffering from true tic douloureux, a condition which is not of infective origin, who have had a clean sweep made of all the teeth on one side of the upper jaw, without, of course, any influence on the condition itself.

There is always a tendency to ride a theory to death. I have sometimes been amused to hear from patients that, after ineffectual efforts to fit them with suitable glasses, an optician, in his wisdom, has informed them confidently that they suffer from sepsis, and must have their teeth removed at once. Such a case was wisely referred to me by a perplexed dentist a few days ago, having been unable to detect any fault in the teeth, and I have no doubt that many a useful tooth is, in this way, sacrificed, without material benefit to any real or imaginary malady.

Before concluding, I would take this opportunity of expressing my sincere thanks to you for the honour you have done me to-night, and my keen appreciation of the privilege of being enabled to speak to members of your profession. Hitherto the boot has been on the other foot, and it has invariably been I who, with my mouth wide open, have been forced to listen to the eloquence of my dentist. However, to-night vengeance is mine; an eye for an eye and a tooth for a tooth, but where the eye is infected, should there exist a septic focus, let it rather be a tooth for an eye.—*The Australian Journal of Dentistry*.

Annual Report of the Dentists' Legal Protective Association of Ontario



OUR committee met last week and, after some deliberation, it was considered advisable that in my report there should be presented a brief outline of the inception and development of the Dentists' Legal Protective Association, so that the members should understand the nature of the instrument that is at their service all the time.

A number of years ago numerous cases came to light where younger dentists were threatened with suits for damages that were so unjust that they were little short of blackmail. As a result, a committee was formed by the Ontario Dental Association, with the late Dr. R. G. McLaughlin as chairman, for the purpose of advising any dentist who might be faced by a possible action. Valuable help was given many a dentist especially by the rare common sense and wisdom of Dr. McLaughlin. It soon became evident that most of these cases required to be handled by competent legal experts, and there was formed, accordingly, the D.L.P.A., with an annual fee of \$3.00 per member. While the Association assumed no responsibility for the payment of any damages should a court action give them to a plaintiff, the Association undertook to provide and pay for the legal expert to defend the case or, in the event of the dentist being at fault, to advise towards the most favourable settlement. This service was available only for members of the Association. In time it became obvious that it was of great importance to the whole profession, and its future standing in the community, that all such cases should have the care of competent legal counsel. Thereupon, the Board of Directors of the College decided that the annual licentiate fee should be increased from \$3.00 to \$5.00 and that they would grant such monies as were needed for the defense of all such actions as might be brought against members of the profession in the Province. Since the above status of the Association has been established the firm of I. H. Hellmuth, Cattenach and Ramsey, has been retained and has dealt with such cases as have presented. It is very gratifying to report that out of some twenty cases all but two were withdrawn when the plaintiff's counsel was faced with a denial of liability by our solicitor. And of these two, one went to court and was

won for the defendant. In the other case it happened that the plaintiff was killed the day before the case was to be held.

While the constitution of the D.L.P.A. confines its activities to suits, and threatened suits, for damages, and does not assume any duty to collect accounts, there have been several cases where patients have had work done and thought that all they had to do was to say that the work didn't please them and refuse to pay for it. The committee of the Association concluded that it was in the interest of the profession at large that these cases should be dealt with, to establish the fact, and broadcast it, that patients cannot play fast and loose with their financial obligations to the dentist.

An analysis and resume of the cases dealt with in the past year will appear in our journals shortly, and it is recommended that the profession give this report their careful attention. It has long been established in law in connection with the older profession of Medicine and Surgery, that where the practitioner in his work has observed all reasonable precautions the law does not hold him responsible, if the result of his work is not all that was planned and hoped for.

The same common sense immunity in the law should be enjoyed by the careful, conscientious dental practitioner, but as yet our profession is a young one and there have not been enough precedents to establish in the mind of the law that immunity for the dentist that is enjoyed by the older profession. The work done by your D.L.P.A. is rapidly achieving that end.

HAROLD CLARK,
Chairman.

SECRETARY'S REPORT, 1927-1928.

During the year the Association has dealt with a number of cases of dispute between operator and patient, mostly in conditions following extractions. In two cases, fortunately for the defendant, the time limit of six months prevented suit being entered. Several cases in connection with prosthetic work, a refusal to pay, or a demand for a refund, were considered, and the dentist advised what he should do. So far as reports have been received the results have been satisfactory.

It might be of interest to report more in detail on other cases.

1. Dr. S.—Tooth extracted and temporary dentures. Dentures loose on account of absorption. Went to another dentist. Demanded fee back. Defendant consulted counsel, counsel wrote to Plaintiff's solicitor and denied liability and said would accept service. Case dropped.

2. Dr. M.—Made upper denture. Very difficult case—under protest on account of condition of lowers. Patient agreeing to have them extracted later. Then would not and demanded refund. Plaintiff's solicitor threatened suit.

Reply.—Our Solicitor corresponded with other solicitor, denying any liability. After some correspondence it was suggested to Dr. M., to refund a part, not that he was liable, but to avoid publicity. Dr. M. refused and case was dropped.

3. Dr. H.—Extracted lower first molar. Told patient to return if trouble. Came back a month later—large swelling—referred to Dr. Robb. Later patient in hospital with other complications as well. Lawyer's letter threatening suit—referred to counsel, who communicated with plaintiff's solicitor. No more heard of case.

4. Dr. W.—Asked, "Is it legal for a Dentist to act as Anaesthetist for a Medical man for surgical operation?"

Reply:—"No law requiring anaesthetist to be registered, do not see why a dentist should not act as such on request of medical man for an operation. Opinion expressed not be practising medicine and surgery within meaning of Medical Act. Question of responsibility in case of accident has not been established, but opinion is the surgeon who is in complete charge of case would be the one on whom the responsibility would rest."

5. Dr. W.—Assistant for two years with Dr. X.—on weekly salary—option of buying him out or starting alone. Started alone.—Dr. X. continued sending accounts with Dr. W.'s name, with a notice that partnership dissolved. Only time names were coupled was last six months when both names appeared on sign at door.

Question 1.—Does allowing Dr. W.'s name on the door with his make Dr. W. a partner?

Question 2.—Can he call Dr. W. a partner and collect accounts with Dr. W.'s name coupled with his own?

Reply:—Is no way interested in profits but on salary, fact of name on door would not make Dr. W. a partner. Dr. X. had no justification in including Dr. W.'s name on accounts and notice announcing dissolution of partnership, but Dr. X. has done nothing to render him liable in an action. Quite in order for Dr. W. to notify his patients he has no interest in the business and had taken no part in making up the accounts or in sending the circular.

6. Dr. N.—Extracted January 11th and 14th with local. Impression February 28. Inserted March 3rd. About middle

of April presented with swelling under the mandible, paid account, said had a cold and was going to see medical man. April 23, wrote threatening suit. Counsel advised writing patient denying any liability. Nothing further.

7. Dr. R.—Patient had large gold inlay—2 teeth treated—four tooth bridge made. Paid small deposit. Kept all appointments until bridge completed then did not return. A year after had work completed by someone else. In meantime Dr. R. had scrapped the bridge.

Question:—How can I make him pay at least cost of bridge?

Reply:—In order to make the patient liable, necessary to write him that the bridge was ready and asking him to take it and pay for it and if he refused he could be sued for its value, but since bridge scrapped no remedy against him.

8. Dr. C.—Mar. 29. Extracted badly broken down molar with elevator and removed part of process. Treated next day. Following day patient saw physician, who gave treatment.—Told Dr. C. thought antrum involved.

April 27. Physician stated an abscess in parotid gland and had broken-in mouth, that patient's husband was angry and threatened suit. Husband called on Dr. C. and left lawyer's letter demanding payment of physician's account. Several letters between plaintiff's solicitors and ours. Case finally dropped.

9. Dr. H.—A disputed account—asks if he is justified in pressing for payment. Opinion, no question, patient is liable.

10. Dr. Y.—Used local injection.—Alveolar tissues sloughed off, also hole in cheek. Week later was called to patient. Physician already in attendance. Physician had case subsequently. Outer alveolar process came away. Suit threatened. Solicitor advised no chance of suit as time limit had expired.

11. Dr. J.—Patient left denture to be repaired. In moving to another town denture lost. Offered to arrange for dentist near her to make another, but she demanded \$35.00. Threatened suit.

Opinion:—Patient not compelled to accept offer—has right to demand denture or damage for its loss. If suit goes on defendant must prove loss not due to any negligence on his part, which would be difficult. If damages given against dentist would be for value of denture in unrepaired state and not original cost. Advise to settle on reasonable terms.

12. Dr. N.—Removed bridge from patient—could not locate after patient left. Later patient demanded original outlay, \$50.00 Denied having lost, but on principle patient always right, offered to make new one without fee. Insisted on case or suit—suit entered.

13. Dr. K.—**Question:**—If a mechanical laboratory works for dentist not in good standing may he sue for his bill.—“No concern of mechanical man whether or not dentist is in good standing and may collect account through court.

14. Dr. McC.—April, 1927.—Extracted loose 1st bicuspid—local. Was called to see patient week later. Physician also consulted. Called several times. Then physician removed a piece of process and 2nd bicuspid—left opening into antrum. Denied any responsibility but paid physician's account and bill for x-ray—\$35.

July 7th, opening still there—made denture, no charge. Demanded compensation—again denied any responsibility.

January 4th, again demanded compensation and threatened legal procedure.

Reply:—In no way responsible—acted very generously and without admitting any liability justified in refusing to do anything further.

15. Dr. McC.—Extracted impacted 3rd molar. Some months after patient claimed broken instrument left in tissues. Asked \$300, or turn over to attorney. From dates, appeared to be outlawed, but I advised Dr. McC. to write her disclaiming any liability. Letter from plaintiff's solicitor was received threatening suit. As dates were indefinite referred to counsel, who said case outlawed.

16. Dr. McL.—Concurred the purchase of a practice with the exception of one branch, such as x-ray, or Exodontia or Prosthetics. All other work to be referred to prospective buyer.

Question:—Is a verbal agreement in presence of witnesses as binding as written?

Reply:—Sale of one branch of practice including good will and equipment need not necessarily be in writing. If purchaser takes possession immediately or pays part of price, agreement is binding without being in writing, otherwise it must be in writing to be enforceable by law. Advisable to have in writing.

Later—Dr. A. sublet office at rental and certain sum to Dr. X., with promise of referring denture work, which he did for short time only. Two years later Dr. A. wished to reduce his practice and sold location, some equipment and good will and referred denture work to Dr. X. In agreement, a clause stipulating all new patients and all certain kinds of work would be referred to Dr. X. Dr. A. objected that this would prevent him from working for relatives and it was struck out. In four months two cases had been referred and none since. Later Dr. A. sold building and equipment to Dr. X.

Reply:—In agreement no provision for sale of good will, only attempt at such was struck out—could not defend in court that written document did not contain whole agreement.

ORAL HEALTH for July, 1928

17. Dr. T.—Case of post-extraction complications with lawyer's letter threatening suit. Counsel consulted with Dr. T.—wrote plaintiff's solicitor. Dr. T. not liable. Nothing further.

18. Dr. C.—Made two dentures—to be paid next week—account sent—a medical man said he could never wear dentures and refused to pay—later got two others elsewhere for less—asks procedure.

Reply:—Good case. Garnisheed husband's wages. Went to court. Decided with costs in favour of dentist.

19. Dr. D.—Oct. 10. Mandibular injection—broke needle. Appointment with Oral Surgeon for next day. Referred to hospital for x-ray.

Oct. 21—Attempt to remove needle unsuccessful.

Oct. 22.—Removed under anaesthetic. In hospital 22nd, 23rd, 24th. In bed at home 25th, 26th. Surgeon's office 28th. Nov. 28th, Lawyer's letter asking for compensation. Suit entered. Examination for discovery. Nothing further heard of the case.

20. Opinion on two matters:—(a) In case the dentist in making injection for conduction anaesthesia breaks the needle in the tissues, is he forced to tell the patient that the accident has happened, or is he within his legal rights by withholding the information, providing he does his best to safeguard the interests of the patient?

Reply:—No legal obligation to inform the patient, but to avoid inference which might be drawn by withholding such information, certainly proper to tell patient. If case went to Court, a Judge or Jury might consider the withholding of information an indication that the breaking of needle was caused by negligence. Also patient should know, so as to decide whether or not to have x-ray.

(b) In such cases when it is necessary to refer the patient to a specialist, does the dentist accept greater obligation when he makes the arrangements for the patient to go to the specialist, and when he endeavours to see that the specialist is paid his fee?

Reply:—When necessary to refer patient to specialist, should leave the selection of specialist to patient, unless patient requests otherwise, no part of a dentist's business to see that the specialist is paid his fee. Unless dentist chooses voluntarily to pay the fee, all financial arrangements should be left to patient.

21. Dr. I.—Claim for alleged broken jaw during extraction. Writ served. Plaintiff circulated reports regarding Dr. L. Suit for slander threatened. Suit for damages to go to Court. Defence prepared and engrossed. Motion to strike out Jury notice, order made. Appointment for examination for discovery. Patient killed in motor accident.

ORAL HEALTH for July, 1928

22. Dr. C.—School dentist—after a survey—two boys come to office for some work. Gave estimate and told them to get parents' consent. Returned, stated consent given. Parents of one refused to pay. Principle at stake—whether in case of a minor a written order is necessary before dentist could begin operations. Decision of Judge Widefield in favour of dentist.

Financial Statement for 1927-28.

Receipts:

Cash from last year	\$4,428.76	
Bank interest	135.14	
From R.C.D.S.	2,500.00	
		\$7,063.90

Disbursements.

Legal expenses for year	\$ 360.69	
Office assistance	2.25	
Auditor	50.00	
		\$ 412.94

Cash on hand April 30th	\$6,650.96
-------------------------------	------------

Respectfully submitted,

W. E. WILLMOTT,

Secretary-Treasurer.

Ontario Oral Hygiene Committee Twentieth Annual Report



THE work of this committee has become very wide spread. It is carried on by co-operation with the dentists of the Province, the Ontario Health Department and the various Municipal Health Departments. Your committee has tried, in the past year, to keep the general programme of dental health education, and dental services, for those who cannot obtain such in the regular way, well in hand.

Most of the activities of your committee are reported from time to time in the "Booster", so you are all fairly familiar with our work.

1st. Dental Health Education.

This was carried on by means of illustrated lectures by dentists, and others, throughout the Province. Your committee provided booklets, slides, and charts. A very fine new chart is in the process of making, which we think will be very useful in educational work.

The Ontario Department of Health sent motion pictures

and an operator to many parts of the Province. At the Canadian National Exhibition there was a display along the lines of preventive dentistry. As this is view by possibly a million people, one can easily imagine the value of such a display.

Arrangements are being made for similar displays in the smaller places.

Numerous newspaper articles were published, dealing with the importance of, and methods used in, the prevention of dental disease. This work should be extended and your committee would appreciate assistance from the members of the association in preparing such articles.

Surveys of school children are being requested from all over, by School Boards and Officers of Health. Dental conditions amongst the children are none too good. Our statistics show that where measures have been taken to lessen these bad conditions, by education along preventive lines, and by corrective operations, the conditions have greatly improved. This work in the schools must be extended. Focal infection in children, from so-called gum boils, abscesses on the temporary or deciduous teeth is a real serious menace. Their systems become sensitized to infection and the foundation for ailments in early adult life is formed from what has, heretofore, been considered as only a gum boil on a first tooth. Your committee feels that it is the duty of every dentist, every parent, every school board, every school teacher, every officer of health, and every department of health to so work and strive that this most serious menace of focal infection around the teeth of children must be eliminated. Only in this way can be prevented many of the diseases of the heart, joints, kidneys, gall bladder, and many others, which are affecting many thousands in adult life.

Another notable advance in dental health education is that the Director of Dental Services of the Ontario Health Department, will give a course of lectures to the teachers-in-training at all Normal Schools.

Addresses along this line were given to the Ontario Educational Association in April, and will be given to the Ontario Health Officers' Association this month.

A dental health play entitled "The Road to Goodtooth-town" has been written for your committee, by Dr. J. C. Livett, and has been presented. This will be further improved and, in due course, published for use throughout the Province.

2nd. Services.

As a result of the investigations carried on by the Director of Dental Services for the Province, the work of this association and others, it was found that many people of the Province, and especially children, were unable to procure needed treatment. This was due to the fact that they were either too poor to obtain the same in the regular way, or were too remote from a practicing dentist.

With this in view a very large and influential deputation from all walks of life waited upon the Government in January. This deputation asked the Cabinet to arrange for Government grants, so that,

(1) Municipalities willing to establish a school dental service will receive an annual grant sufficient to cover the cost of the equipment over a period of ten years.

(2) In municipalities too small for a regular dental clinic, arrangements may be made by the municipality to send the children to the office of a resident dentist who will do the work for the cost of material and overhead, thus giving his time gratuitously. In such cases, the Government will be asked to make a grant to the municipality equal to $12\frac{1}{2}\%$ of the cost of the service.

(3) Travelling clinics will be organized for the more remote parts of the older Ontario. The municipalities arranging for clinic will pay the dentist a per diem fee, and the Government will make a grant to the municipality equal to $12\frac{1}{2}\%$ of the cost of the service.

(4) Hospital dental departments may be established, the Government giving a grant of 10c. per operation, and the municipality paying at least 15c. per operation, to assist in covering the cost of the service. The dentists will give their time gratuitously.

The Government was also asked to accept responsibility for providing dental treatment for the people in the unorganized parts of the Province, and to arrange for travelling dentists to visit the smaller places in these areas.

A plan to make it easier for industrial workers to secure dental treatment was also presented.

The Health Department has arranged for work in the unorganized part of the Province, that is, where there is no practicing dentist. This work was started last summer and

ORAL HEALTH for July, 1928

will be continued under a satisfactory arrangement with the local dentists.

But something must be done to help those in other parts of the Province. The dentists are willing to do their share, but they cannot bear the whole burden. The Government must take the initiative and assist in this work. Grants are made for many services and purposes, but none, so far, for dentistry.

Common humanity demands that assistance be given. Public opinion, as instanced by the personnel of the deputation, is strongly behind this programme.

Dental service for those unable to pay, with the Government, the municipality and the dental profession co-operating is a cause worthy of support. These children and people simply cannot be allowed to suffer ill-health and maybe death. If the Government refuse, in the face of all evidence, to come to their assistance, it will be failing in its duty.

We feel quite confident that, in the near future, the Government will lead the way and make it possible for these children and others to receive the much needed treatment.

Your committee has representation on the Canadian Dental Hygiene Council and also the Hygiene Commission of the International Dental Federation. These connections are very valuable. We can thus keep in touch with what is being done, not only in our own country, but all over the world in the promotion of mouth health. We have been asked to give a paper at the meeting which meets this year in Cologne, Germany, of the Hygiene Commission of the International Federation.

In order to assist as much as possible with the individual problems of the local committees, and to unify the work, your committee is arranging to meet with each local committee throughout the province.

In closing, we wish to thank not only the members of this Association, but those of other organizations, and the many laymen who have this work at heart and so ably assisted us.

ARTHUR W. ELLIS,

Chairman.

Dr. Ellis moved the adoption of this report, seconded by Dr. Seccombe, and carried.

Scholarships in Dentistry, University of Toronto, Session 1928-29

SCHOLARSHIP IN HONOUR OF THE MEMORY OF THE LATE
DEAN WILLMOTT.

O encourage higher scholarship and to commemorate the memory of the late Dean Willmott, the Board of Directors of the Royal College of Dental Surgeons of Ontario, has made provision for an annual scholarship of \$250 to be known as the J. B. Willmott Scholarship. The University has established the scholarship which is to be awarded to a student in first year Dentistry in the University of Toronto, upon the following conditions:

1. This scholarship shall be awarded annually and shall have a value of \$250.
2. The holder shall be a member of the First Year Class in the Faculty of Dentistry of the University of Toronto.
3. The award shall be made upon standing in the subjects prescribed for entrance to the Faculty of Dentistry of the University of Toronto obtained either in departmental or Arts examinations in any Province of Canada. Character and capacity for leadership will be considered in making the award.
4. The scholarship shall be awarded upon the recommendation of the Faculty of Dentistry.
5. The payment of the scholarship shall be made in two instalments, one December 15th, and the other March 15th, upon certification of the Dean of the Faculty of Dentistry of successful progress in the work of the year.
6. Applications will be received by the Dean of the Faculty of Dentistry on or before October 15th.

THE ASH-TEMPLE SCHOLARSHIP.

The conditions of the Ash-Temple Scholarship have been amended by the Senate of the University of Toronto to make it available to a fifth year student who attained highest standing in fourth year Clinical Dentistry. The amended conditions are as follows:

1. This scholarship shall be awarded annually and shall have a value of \$250.
2. The holder shall be a member of the Fifth Year Class of the Faculty of Dentistry of the University of Toronto.
5. The award shall be made upon standing in Clinical Dentistry obtained in the Fourth Year of this Faculty. Character and capacity for leadership will be considered in making the award.

4. The scholarship shall be awarded upon the recommendation of the Faculty of Dentistry.

5'. The payment of the scholarship shall be made in two instalments, one December 15th and the other March 15th, upon certification of the Dean of the Faculty of Dentistry that satisfactory progress is being made in the work of the year.

6. Applications will be received by the Dean of the Faculty of Dentistry on or before May 15th.

THE ONTARIO DENTAL FELLOWSHIP.

The Senate has also agreed to such amendments to the conditions of this fellowship as shall enable the interne to devote his undivided attention to hospital service rather than spending half-time in dental research.

Conditionss

1. This Fellowship shall be awarded annually and shall have a value of \$250.

2. The holder shall be a graduate in Dentistry of the University of Toronto, and appointed as an interne in a hospital in Ontario.

3. In order that complete facilities for dental research may be available to the interne, the hospital shall have an adequately organized dental service along the following lines:

(a) The hospital shall conduct a Dental Department as a major service with a graduate in Dentistry as chief of the department, and a member of the active staff of the hospital, holding the same relative rank as the chiefs of the other hospital services:

(b) The hospital shall maintain a dental clinic and operative room:

(c) The hospital shall require that all public ward patients receive routine dental examination, which shall be charted on a special form and retained with the patient's history.

4. The Fellowship shall be awarded upon the recommendation of the Faculty of Dentistry.

5. The payment of the Fellowship shall be made in two instalments: One, December 15th and the other March 15th, upon certification of the Dean of the Faculty of Dentistry that the work is proceeding satisfactorily.

6. The holder of this Fellowship, after the successful completion of one year, shall be eligible for re-appointment.

7. Applications will be received by the Dean of the Faculty of Dentistry on or before May 15th.



---Of Human Interest

This Department is Conducted by
G. MERRICK SINGLETON, D.D.S.,
2867 Dundas Street West, Toronto.

I invite you to read my page, and hope that you may find here, as I have, something which will cause you for a short time at least, to forget a few of the many perplexities of our daily round.—G.M.S.



Books of My Boyhood



WO books of my boyhood shall ever stand out in my memory, head and shoulders above all others, and these are: Fenimore Cooper's "The Last of the Mohicans," and Robert Louis Stevenson's "Treasure Island."

I wonder what popularity the books of Cooper enjoy to-day?—Do they still fire the imagination of thousands of boys, as they did in former generations?—I doubt it. Stevenson was conscious of this changing taste in boyhood reading, when he prefaced "Treasure Island" with his well-known verse:

"If sailor tales to sailor tunes,
Storm and adventure, heat and cold,
If schooners, islands, and maroons
And Buccaneers and buried Gold,
And all the old romance, retold
Exactly in the ancient way,
Can please, as me they pleased of old,
The wiser youngsters of to-day.

—So be it, and fall on. If not,
If studious youth no longer crave,
His ancient appetites forgot,
Kingston or Ballantyne the brave,
Or Cooper of the wood and wave;
So be it, also. And may I
And all my pirates share the grave
Where these and their creations lie."

However, regarding Cooper's great classic, "The Last of the Mohicans," it is interesting to note that just over one hundred years have elapsed since it was first published. It was written under peculiar circumstances. In the Summer of

1825, Cooper, in company with several young Englishmen, including Stanley, afterwards Lord Derby and Prime Minister of England, left New York with the intention of making an excursion to Saratoga and Lake George.

On reaching Glenn's Falls, the whole party was struck by the natural beauty, especially of the dark, silent caverns and stern, sombre rocks. "Here is the very scene for a romance," exclaimed Stanley, and exacted a promise from the novelist, who was then known as the author of "The Spy," that he would undertake such a romance. Notes of the scenery were made then and there.

The rest of the summer Cooper passed with his family on Long Island, then a quite rural region. Before his marriage Cooper had been in the navy, and he was never really happy unless he was in sight of the sea. He had a little yacht called the Van Tromp, in which he used to take his family sailing, teaching his boys all he knew of the craft. Cooper's time at this country cottage on Long Island was divided between sailing his yacht and writing his novel. But he had finished only a few chapters when he was seized with sunstroke. His mind was filled with the characters and plot of his book, and in his delirium he talked of nothing else but Natty, Chingachgook, and Cora. One afternoon he demanded pen and paper, but he was too ill to use them, so he begged his wife to write from his dictation. She was afraid to refuse for fear of exciting him the more, but what she wrote seemed to her wild and incoherent. However, a study of the twelfth chapter, which was the one thus written, shows that whatever may have been the state of Cooper's body, his mind was clear enough.

In the novel, Cooper calls Lake George by the name of Horican. It was General Johnson who, in 1775, gave it the name of George to assert the dominion of King George III. there, a dominion that was to last only a few years longer. The name, however, in spite of Cooper's effort to change it, has prevailed.

Fenimore Cooper, as may be gathered from his novels, was a pugnacious person. He started his career by being expelled from Yale, and later went to sea as a common sailor, afterwards entering the navy. The later years of his life were taken up by literary and newspaper controversies and actions for libel, in which, though he had had no legal training, he usually pleaded his own cause. He died in 1851.



British Columbia—W. J. BRUCE,
D.D.S., 404 Birks Bldg., Van-
couver.

Alberta—JOHN W. CLAY, D.D.S.,
914 Herald Bldg., Calgary.

Saskatchewan — C. W. PARKER,
D.D.S., Imperial Bank Bldg.,
Regina.

Manitoba—W. W. WRIGHT, D.D.S.,
767 Warsaw Ave., Winnipeg.

Maritime Provinces—J. STANLEY BAGNALL, D.D.S., 34 Larch Street,
Halifax, N.S.

Ontario—LIEUT. COL. W. G. THOMP-
SON, 46 Sun Life Bldg., Hamil-
ton.

STANLEY G. McCAUGHEY, D.D.S.,
384 McLaren St., Ottawa.

Quebec—M. L. DONIGAN, D.D.S.,
1396 St. Catherine St. W.

PAUL GEOFFRION, D.D.S., 308
Sherbrooke Street, Montreal.

*Provincial Editors will appreciate receiving from all local societies copies of
papers, society proceedings or personal notes, for publication.*



MARITIME PROVINCE NOTES.

THE last meeting of the Halifax Dental Society for the season was held in April. Dr. C. E. MacArthur, of Truro, was the speaker of the evening. He gave a very interesting talk on some methods which he had found of assistance in his practice. The talk was followed by a discussion in which a number of the members present took part, giving methods which they had found of assistance.



The next annual convention of the Nova Scotia Dental Association is to be held in Halifax, on July 17-18-19. The main part of the scientific programme will be taken by Dr. Leslie, of Philadelphia, who will go very fully into the late Dr. Wadsworth denture technique. A cordial invitation is extended to the members of other dental societies to attend the meetings.



Drs. Lewis and Godsoe (Dal. 1928) are planning to open offices in Halifax.

Dr. Miller (Dal. 1928) is taking over the practice of Dr. J. S. Bagnall in Charlottetown, P.E.I.

Dr. Smith (Dal. 1928) and Dr. Tupper (Dal. 1928) expect to practice in Liverpool and Lunenburg, respectively.

QUEBEC.

THE MONTREAL DENTAL CLUB.



NE of the most enthusiastic dental gatherings that Montreal has ever held, was witnessed on Monday evening, May 14th, when some seventy dentists met at dinner in the Windsor Hotel, to do honour to Dr. A. W. Thornton, D.D.S., L.D.S., F.A.C.D., retiring Dean of the Faculty of Dentistry, McGill University. In addition to the members of the profession in Montreal, visitors from Chicago, Toronto and other outside points were present. Dr. Thornton, who for the past fifteen years has been first, the head of the department and, at a later date, the first dean of the Dental Faculty at McGill University, is now retiring from his active duties, and it was felt by his many friends that a more appropriate time could not be found to show, in some degree, the great esteem in which he is held.

Messages of congratulation were read from Dr. Thornton's many friends, the continent over, wishing him the best of health and prosperity, and regretting their inability to attend in person. Many glowing tributes were paid to Dr. Thornton by the speakers, who included Dr. D. M. Gallie, who represented the Chicago dentists and the Illinois State Society; Dr. Wallace Seccombe, who represented the University of Toronto, The Ontario Dental Association and the American Association of Dental Schools; and Mr. Justice Surveyer, who represented McGill University on behalf of Sir Arthur Currie, who was unable to attend.

Reference was made by all the speakers to the high positions Dr. Thornton has held in the dental profession, and his recognized ability as a teacher. Dr. Gallie, in the course of his speech, said that, "No teachers' meeting was complete without him." Great credit was also given Dr. Thornton for the great advancement of the Dental Faculty at McGill, during his term there. When he first came to Montreal, it was but a small department of the Faculty of Medicine, poorly equipped and with limited facilities for teaching of Dentistry. Soon after Dr. Thornton's arrival at McGill, the Great War broke out, and, as a result, the registration in the department of Dentistry fell very low. Nothing daunted, however, Dr. Thornton carried on, planning and organizing, and when the first large classes came in after the war, he was ready for them.

In 1919 the department of Dentistry became the Faculty of Dentistry, with Dr. Thornton as its first dean and, up to now, its only one.

In 1921 the new dental clinic at the Montreal General Hospital was opened, due mainly to the untiring efforts of Dr. Thornton. He is now leaving McGill, but leaving the Dental Faculty in a very different position than when he first arrived there. It now has a well organized curriculum, a nine month's post graduate course and a splendidly equipped forty chair clinic with all facilities for research work. It is due entirely to Dr. Thornton that the name of the Dental Faculty of McGill has been spread over the entire continent and the unique efficiency of its hospital clinic has been a valuable guide in practical Dental teaching.

Dr. F. G. Henry, in his remarks on Dr. Thornton's career said, "He has done a man's life work in the fifteen years we have known him, and probably another man's life work before that."

Dr. Thornton made a short reply in which he said: "I have never regretted the time I have devoted to Dentistry, and although I have been in every state of the Union and in every province of Canada, God knows where my heart is. To-night, I feel at home."

The evening closed with the singing of "Auld Lang Syne" and "God Save the King."

M. L. D.

Bust of Late Dr. Hunt



THE Indiana State Dental Association presented a bust, in bronze, of the late Dr. P. G. C. Hunt to Indiana University, on May 21, 1928. Dr. Hunt was for many years Editor of Oral Hygiene and Dean of the Faculty of Dentistry in Indiana.

ENGINE HANDPIECES.—If rubbed frequently with solyptol on cotton wool, and then rubbed with a dry cloth, an engine handpiece may be kept in an aseptic condition.

Next to this, practically every bur used should first be partly dipped in engine oil, kept conveniently handy.

Oral Health



Vol. 18

TORONTO, JULY, 1928

No. 7

EDITOR:

WALLACE SECCOMBE, D.D.S., F.A.C.D., Toronto, Ont.

CONTRIBUTING EDITORS:

C. N. JOHNSON, M.A., D.D.S., F.A.C.D., Chicago.

W. E. CUMMER, D.D.S., F.A.C.D., Toronto.

Entered as Second-Class Matter at the Post Office Department,
Ottawa.

Subscription Price, Canada and United States, two dollars per annum; elsewhere three dollars. Single Copies 25c. Free distribution to all members of the Dental Profession practising within the Dominion of Canada and Newfoundland.

Original Communications, Book Reviews, Exchanges, Society Reports, Personal Items and other Correspondence should be addressed to the Editor Oral Health, 102 Wells Hill Avenue, Toronto, 10, Canada.

Subscriptions and all business Communications should be addressed to The Publishers, Oral Health, Royal Bank Building, 269 College St., Toronto, 2, Can.

EDITORIAL

"Of Human Interest"

OR some time the editor has looked forward with interest to the publication in the daily press of short articles of a literary character which have appeared under the nome de plume "G.M.S." The editor was agreeably surprised to learn that "G.M.S." was none other than Dr. G. M. Singleton, who graduated in Dentistry from the University of Toronto, in 1917, and who, during his undergraduate course, was a member of the staff of the student publications, "Varsity" and "Hya Yaka". Dr. Singleton enlisted in the Canadian Army Dental Corps upon graduation, served until the time of his discharge two years later, and since then he has been engaged in dental practice in West Toronto. He gives part-time service in the School Dentistry Division of the Toronto Department of Public Health and also finds time

for membership in different literary clubs, he having for a time served upon the executive of the Toronto Branch of the Dickens Fellowship.

Dr. Singleton was invited to edit a department in "Oral Health", the title of which is "Of Human Interest", and that the readers of "Oral Health" may understand the purpose of his page and learn to know Dr. Singleton better, we publish his reply to our invitation:

Toronto, 6th June, 1928.

Dear Dr. Seccombe:

With hesitancy, prompted by a deep consciousness of my limited ability for such a post, I have accepted your invitation to conduct a page in your magazine "Oral Health."

Within its confines, I do not propose to offer any so-called "practical hints", nor have I the genius to write a poem, nor the orthodoxy to preach a sermon. I can offer merely the more-or-less fragmentary observations of a quiet life, simple discussions of passing events, and a brief treatment of subjects whose interest is above all I hope—human.

May my meagre fare prove attractive and the readers of my page find there, as I have, something which will cause them for a short time at least, to forget a few of the many perplexities of our daily round.

Yours faithfully,

G. MERRICK SINGLETON.

Readers of "Oral Health" will not turn to Dr. Singleton's page to find a direct solution to their dental problems. They will find here, however, a pleasant diversion and doubtless a stimulation of their love for good books and a further development of those wider interests outside the more or less circumscribed areas of professional life.

Unselfish Co-operation



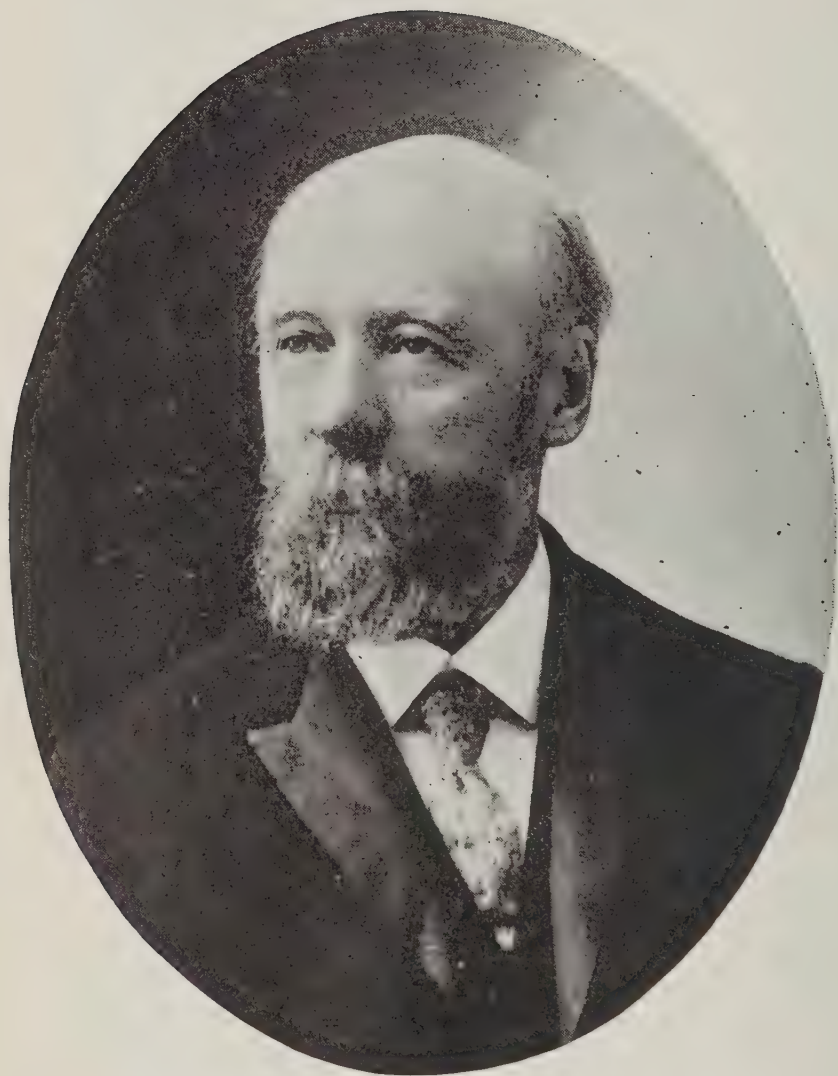
AETERLINCK says: "One bee can never make honey, for the reason that a bee alone has no intelligence. Bees succeed only by working for the good of other bees. A single bee separated from the hive is absolutely helpless, yet a hive of bees has a very great and well defined purpose and intelligence."

The Happiest Age ?

*What age is happiest? Had you asked me,
I would have made this plea: the Now is
best. What joy to live with zest each new-
born day; and from the Moment wrest what
life will give away. The Past is but a guest
who came and went and left this one behest:
to be content.*

*What age is happiest? Oh! hear my vow,
for I have put the test—the happiest is Now.
Sweet mirth and kindly jest for warmth and
cheer; and Love's most high bequest to
crown the year.*

—Wilhelmina Stitch.



DOCTOR J. S. BAGNALL,
Charlottetown, P.E.I.

ORAL HEALTH

*A JOURNAL THAT STANDS FOR THE OUNCE OF
PREVENTION AS WELL AS THE POUND OF CURE*



Vol. 18

TORONTO, AUGUST, 1928

No. 8

Pioneers in Canadian Dentistry

DOCTOR J. S. BAGNALL HAS PRACTISED IN PRINCE
EDWARD ISLAND FOR FIFTY YEARS.

DOCTOR BAGNALL was born at Hazel Grove, Queen's County, Prince Edward Island, on December 9th, 1851. Spent his boyhood on the old farm homestead, which had been founded by a Richard Bagnall, who came to Prince Edward Island as a U.E. Loyalist, in 1787. He attended the district school and, later, Prince of Wales Collegiate, at Charlottetown.

He moved to Charlottetown to live in 1871, and spent two years in the practice of medicine, with the late Dr. Johnson as preceptor. He then decided to study dentistry and entered the office of the late Dr. C. L. Strickland, spent a year with him and then matriculated into the Philadelphia Dental College, in the Session of 1874-75. Returned to Prince Edward Island and practiced in Summerside for two years, and then spent the Session 1877-78, in the Boston Dental College, from which institution he graduated in March, 1878. He was the first native of Prince Edward Island to obtain a college degree in dentistry. He opened an office in Charlottetown on April 20th, 1878, and continued in active practice until April 16th, 1928.

Dr. Bagnall joined the Oddfellows in 1879, became a Past Grand in 1894, and was presented with a Veteran Jewel in 1916.

Dr. Bagnall has always taken a very active and progressive interest in dentistry. He made it a practice, for many years, to spend a while each Fall in Boston and New York, to keep in touch with the developments of the profession. He was a prime mover in securing the passage of the

first dental law in Prince Edward Island, on July 15th, 1891, and in the formation of the Prince Edward Island Dental Association, on December 30th, 1901. He has filled the office of Sec.-Reg.-Treas. in the Association since July 28th, 1905. He was one of the original members of the Dominion Dental Council, and has attended all the meetings from its commencement, with the exception of 1912, when he was unable to, through illness.

A number of young men commenced the study of dentistry with him, some have passed on, while others are still in active practice.

Dr. J. Stanley Bagnall, Assoc. Professor of Dentistry, Dalhousie University, is a son.

DR. BAGNALL'S NATIONAL ASPIRATION FOR DENTISTRY.

Over twenty years ago Dr. Bagnall delivered a notable address urging the members of the profession to assist him in the development of a plan to bring about National Registration in Dentistry. This address, a copy of which we recently received, and which apparently had not been published, is an indication of his patriotism and breadth of vision. The following is a copy of the address:

"Mr President and Gentlemen:—

"This meeting of dentists is representative of our calling from every province of Canada, to deliberate upon not only an interchange of ideas, which in the past has been so beneficial, but for the laying of the foundation of closer relations among the practitioners of dentistry throughout the length and breadth of the larger half of this continent. Why one State after another of the great Republic to the south of us, as well as almost every section of our own country, should have seen fit to build up a wall around their local territory, so high technically, that men of equal professional attainments are almost prohibited from earning a livelihood, except in the province first selected, it would be hard to define.

"Previous to eighteen hundred and sixty-seven this now important section of the British Empire consisted of several detached portions, with one Province on the West, five Provinces on the East, and a vast territory, almost unexplored, lying between each, with a separate government and a tariff wall about it; where the Custom House Officer met you to examine

your effects almost as soon as you had undertaken your journey!

“But what a change in a few short years! Now we have a cemented and united country, one that stands for much in the bosom of our beloved Empire on which the sun never sets, whilst the lands almost unknown, save to the Red Man and the Hudson’s Bay employees, are now promising to become in the near future the wheat granary of the British Isles and the homes of millions. Thus, while much progress has been made and great achievements have been accomplished, yet we may not stop here. We must reach out after greater things, and since all divisions of labour are calling out for new and improved methods in practical work, we should not be laggards. This Dominion presents an infinite number of avenues to the aspiring.

“With such a happy sequel to the efforts of our statesmen of a generation ago, may we not have faith in a great uplifting in our calling by the making of a gate in each of the walls that are now builded about us, so that the men of sterling worth may be able to pass in and out without hindrance? One object should be to enable those entering upon the practice of dentistry to obtain a full equipment on all lines. Our ideals should be at least moderately high. We should aim at having a trinity of purpose—Education, Organization, and Progress. The first we may claim to possess. This is of no small value, for with the mental faculties properly developed “the nervous system grown more vigorous and active, the touch is more sensitive, and there is greater mobility in the hand.” The successful dentist must possess these qualities. With Education must be coupled Organization, for the effectual carrying out of our aims. With Education and Organization, Progress must follow. Therefore, make the gates strong—gates that will open only to those of push and ability. Whilst careful adaptation of talent in any pursuit is necessary to success; and, as a general principle, no one can succeed who has not a fixed and resolute purpose in his mind and an unwavering faith that he can carry that purpose out; nevertheless, there must be a means afforded to the pursuit to attain the end sought.

“Whilst the provisions of the British North America Act relegate to each Province the making of its own laws on education and all other matters of a merely local character, to the speaker it appears that a standard might be arranged which

each Provincial Government might enact into law that would cover the legal hindrance to a general statute of the Federal Government. It is an important principle, recognized by all methodical workers, that one should 'work from within out.' I can conceive of nothing that would tend more to carry this principle into practical working than the proposition here presented. The present walls must of necessity stand for those of us who do not possess the ability or the aspirations to enter with the charmed number into the higher and broader circle.

"My proposition is briefly this,—That this Convention use its influence in urging upon the Government of the several Provinces the reasonableness of enacting a law, where no such law exists, to regulate the practice of dentistry; (1) that the scholastic attainments, together with a knowledge of the theory and practice of dentistry, be as agreed upon by those now practising in the respective provinces, and to permit registration only to duly qualified practitioners; and (2) to enable such as wish to practice in any province of the Dominion, other than that in which they may for the time being be practising, that a more extended and higher qualification be required of such, scholastic attainments as well as in advanced theoretical, and practical work. This would give a provincial standing. Many details would of necessity require to be arranged, but this would be a matter for after consideration.

"Our present conditions serve to make us narrow-minded and selfish, while the broader field must inevitably brush off much that now tends to make us egotistical. By such a law as here proposed, petty sectionalism would get a set-back by the opening and intercourse of the larger sphere; there would be a goal, the reaching of which would be such an impetus to competency that much good must come of it. Such a law would afford a means of awakening, inspiring, and strengthening the resolution to the highest attainments. It would engender and diffuse a laudable ambition to excel, and thus promote a friendly rivalry resulting in the highest good to all. It would be an up-train to carry those along who would be desirous of continuing their journey; and to such it would reach out the opportunity of standing upon the hill-top of privilege. It would broaden the field of operation, raise the status of the profession, and set a higher value on the work of the skilled practitioner.

"Coming from the smallest—and, may I say, Nature's

prettiest?—member of this Federation, where a commercial traveller is taxed fifteen dollars a year for doing any business with us, I stand for all that is broad, free, and fair, on just and equitable lines. Such narrowness and non-reciprocal relations between each and every part of our land I deprecate, and now am putting myself on record as being for the broadest possible intercourse attainable, on a base high enough to be of benefit to all."

While Dr. Bagnall has passed the three score and ten mile post, he remains young in thought and keenly interested in his chosen profession. Though he has retired from active practice he carries with him the appreciation of the entire profession for the service he has rendered.

Dr. Bagnall was recently presented with an address from the Prince Edward Island Dental Association, extending cordial greeting from his Confreres. Dentists throughout Canada join in these good wishes.

Dental Clinic at Canadian National Exhibition, Toronto



THE Dental Exhibit at the Canadian National Exhibition this year will take the form of a teaching and examination clinic. The display of last year will be repeated and added to it will be a clinic for the giving of examination and advice. The teaching part of the exhibit will present the programme for the prevention of dental disease and the clinic will permit those who so desire to get individual examination and instruction. An x-ray machine will be installed, but pictures will only be taken for those who have been examined at the clinic. These x-ray pictures will not be given to the patients, but sent in every case to the family dentist. It is not the intention of the Committee having charge of the arrangements to open up a free x-ray clinic, but rather to confine this work to the cases which present in connection with the general examination. Emergency treatment will also be given. The Department of Health extends a very cordial invitation to the dentists of the Province to visit the exhibit and, also, desires them to extend the facilities of the clinic to any of their patients who may require the services which the clinic can supply.

Noguchi Victim of Deadly Germ

DR. HIDEYO NOGUCHI, whose work in Bacteriology has meant so much to medical and dental science and who was the discoverer of the source of South American Yellow Fever, died on May 21st, 1928, in West Africa. He was representative of the Rockefeller Institute to discover, if possible, the relation between South American and African Yellow Fever.

The announcement of his death was made by the Rockefeller Institute for Medical Research, which hailed the slight, nervous little germ-seeker, one of the world's outstanding bacteriologists, as a martyr to science. Dr. Noguchi was acclaimed a few years ago one of the ten greatest living Japanese.

"Suppose I discover the cause of this dread disease?" he wrote recently to friends. "The irony of it all is that I probably have it."

At the time he wrote, he had just emerged from an Accra hospital after a week's battle with the disease he was so patiently studying. On the fifth day of his illness he had a monkey injected with some of his own infected blood. The monkey died of the dread fever, one of the scourges of the tropics, while Dr. Noguchi attributed his own recovery to the fact that he had been vaccinated against the South American fever before he left New York.

In the body of the monkey he found the micro-organism which he felt sure was the African fever germ. He wrote to friends that it was somewhat similar to the South American germ he had isolated, but caused a more serious illness and was much more deadly.

Dr. Noguchi was born in Japan. He started his bacteriological studies in that country. In 1900 he journeyed to United States and became an assistant to Dr. Simon Flexner. Four years later he joined the Rockefeller Institute as a member of the original staff.

Honoured by American and foreign universities and decorated by his own and other countries, Dr. Noguchi added to his medical reputation by his researches into Oroya fever and trachoma. His work against African yellow fever will be continued by other bacteriologists of the Rockefeller Institute.

The Newer Periodontia

PAUL R. STILLMAN, D.D.S., F.A.C.D., NEW YORK CITY.

IT has been known for a long time that periodontoclasia is an infection. Studies in the field of research were made years ago in an effort to identify a specific organism as the primary etiologic factor. All efforts in this field have resulted in a failure to identify any such bacterium. This statement is made with the recognition that Vincent's infection should not be included, for, with this one exception, it is now recognized that the bacteria that cause periodontoclasia, and are responsible, to a large degree, for gingival infection, are non-specific in character. These are actually the common varieties which are also common to nearly all human mouths.

The part played by deposits of so-called "tartar" and other accumulations, so frequently seen in every day practice, are more properly judged to be the by-product of the inflammatory process. This symptom is so frequently recognized that certain investigators have believed periodontoclasia was simply a filth disease, but this is not strictly true. They have also claimed that it could not occur if the teeth were kept free from all deposits and debris. The Dental Hygienist was created from the minds of those who held that this same hypothesis was true. But again, it is unfortunately, *not* wholly true. This group held to the principle that cleanliness of the mouth was the foundation of mouth health. This idea in etiology puts the so-called "cart before the horse."

If you will draw upon your own experiences and apply what is termed "common sense" to the solution of this problem, you will soon arrive at the conclusion that all healthy mouths, physiologically, are clean. The human mouth does not become unclean until it is so depleted in vitality that health has been superceded by disease. Mouth filth is the product of this pathologic process, just as a scab is the product of a scratch. The truth is midway between these theories. Bacteria and deposits (tartar) and all oral filth are important as factors in the etiology of so-called pyorrhea, because they favor infection of the gingival tissue. But, any student of pathology knows that infection is not a spontaneous process. Healthy tissue has its own defense, while debilitated cells are

open to almost any wandering colony that may find lodgment. In early stages of gingival infection, inflammation of the marginal gingiva may appear slight and relatively un-important. It is very important, however, to detect this early sign of infection and begin at once to build up the lost resistance in that mouth. For if a slight marginal gingivitis is permitted to go on unchecked, it will certainly invade the pericementum and alveolar process, whose resistance has already been lowered.

In view of the fact that traumatic occlusion is an almost constant factor in the lowering of periodontal tissue resistance, the attention of the leaders in this field has been focused sharply on this factor during the past ten years. Work along these lines has contributed greatly to the control of periodontal disease and also a better understanding of its nature. It is a fact that healing and resolution to health, especially of those of the more advanced stage, can only be successfully treated by giving relief from occlusal trauma and thorough scaling of efete debris from the root surfaces and curettment of the denuded cementum.

There has been much misunderstanding by those not working in periodontia, and to some extent also by some who are, just why traumatic occlusion can have the etiologic importance which has been attributed to it. It has been easy for some to see that the disease process could cause traumatic occlusion, but not how traumatic occlusion could be a primary factor in the etiology. It should be admitted that traumatic occlusion is not the direct cause of this disease. What it does is to cause irritation to the supporting tissues of the teeth and thus throws the circulating mechanism out of balance. When function is disturbed to a degree, congestion results, and resistance is thereby lowered. Enter the bacterial colonists, who take up lodgment in the debilitated tissues destroying the epithelial envelope which gives cover to the blood vessels. The infecting organisms are ready when resistance has been sufficiently reduced in the marginal gingiva, and for a considerable time the infection is confined to this first line of defence. In the early stages, inflammation may appear to be slight and relatively un-important. It is very important, however, to detect this early sign of infection and to begin at once to build up the resistance of these tissues, for if early infection is permitted to go on unchecked, the deeper structures are sure to be involved by a process of extention. For bone whose resist-

ance has been lowered by a constant irritant, such as traumatic occlusion provides, is also particularly susceptible to infection.

A pendulum swings both ways. Recent work by keen students working on this problem has brought about an orientation of the emphasis to be placed on the various pathogenic factors involved. As a result of this, the element of infection, which had been relegated to a decidedly secondary place as a factor of periodical disease, is again brought to the front. This does not mean that these workers are relying on antiseptics and vaccines as in the days gone by. These things were failures and those who employed them failed also. (Acute infections are again excepted.) But as regards the chronic types, which make up a high percentage of all periodontoclasia, antiseptics will never be more than palliatives, and palliatives have never gotten anyone on the road to health. The reason for this is that infection in the gingiva, as elsewhere in the body, must eventually be thrown off by the natural resistance resident in the health cells of that tissue. Periodontists to-day are using measures which will arouse and build up resistance in the tissue which has been treated. Periodontists are becoming more and more interested in the welfare of the circulation of the blood in the periodontal tissues than in anything else. For herein lies the secret of a high degree of success which was withheld from these specialists ten years ago. There are three elements in the terminal circulatory unit which require competent knowledge. These are, the arteriole, the capillary and the venule. The arteriole brings blood to the capillary loop. In the capillary, the nutrient elements are given off to the cells, and most of the tissue waste of this economy is absorbed. The chief function of the venule is to carry off the fluid delivered to an area by the capillary and possibly to absorb a little of the metastatic waste given off by the growing cell. Physiologists have centered attention upon the arteriole and the capillary, that is, on the thought of getting blood to the part and also the thought as regards the quality of that fluid.

It is now known that the function of the venule is even more important than it has been held to be. Arterial blood of a healthy individual will always contain those elements which are necessary to maintain cell nourishment. If this were not so, all tissue would die for want of sustenance. Nutrition is more often withheld from the cell by the retention

of its waste products which is a constant by-product of cell life. It is of first importance then, that venous drainage be adequate for the correct and necessary growth of tissue. Otherwise the tissues will be poisoned by their own by-products, even if no infection be present in that tissue. It is of prime importance then, that venous drainage be adequate in the gingiva.

But when infection occurs! That opens up another avenue, the etiologic importance of which has already been discussed. Here the products of the bacterial action and the toxins recognized in this process must be carried away from the scene by the venous system. But the circulation in the venule is important for still another reason. The rate at which the arteriole and capillary can bring blood to the part depends upon the removal flow which is the function of the venule. When venous congestion occurs, as it always does in marginal gingivitis, the circulation rapidly approaches a condition of stasis. Such a condition of affairs can only find relief through a more rapidly emptying vein beyond. Not by increasing arterial pressure, because the circulatory mechanism happens not to be constructed in a manner that will accomplish this, even when greater pressure is applied by the heart. In the revivifying of tissue the scavenging problem is the important focus for our attention.—*The Bulletin, Alumni Association of the Baltimore College of Dental Surgery.*

The A. W. Thornton Testimonial Banquet Report

HE Thornton Testimonial Committee recently held its final meeting and expressed appreciation of the kindly interest and support by members of the profession throughout United States and Canada, making the testimonial banquet to Dean Thornton such an unqualified success. The total received by the committee was \$2,707. The expenses were \$281.92, which leaves a net balance of \$2,525.08. This balance has been handed to the three trustees appointed to administer the fund.

The Future Holds Promise of Longer Life

[When health authorities state that twenty years have been added to the life expectancy of the average person, they do not mean that the span of human life has been increased to that extent. People to-day do not live beyond the three score and ten limit any more than those of earlier generations. What is referred to is the life expectancy of the average citizen. In other words, more people will live until old age. This is what health education has done for the race.—Editor.]

BASED on statistics of past decades the baby born in 1928 is promised 140 days more of life than the baby born in 1927, according to Edgar Sydenstricker, Statistician of the United States Public Health Service and the Millbank Foundation. The baby born in the new year, Mr. Sydenstricker said, is promised ten years longer of life than his father had when he entered the world, and nearly twenty years longer than his grandfather had the hope of living.

"This advantage which the 1928 baby will have," says Mr. Sydenstricker, "is in the nature of a dividend from an investment which his forbears made in an effort to prevent the diseases which kill children, and in mitigating the conditions which shorten the lives of adults.

"While difficult to estimate, because of fluctuations from year to year, this dividend should be approximately 140 days, this being the average rate per annum of increase in life expectation American babies have enjoyed over a considerable period of years, according to the vital statisticians who are our bookkeepers of life. While it is dangerous to make precise predictions as to the future, with respect to life prolongation, barring unforeseen conditions, the year 1928 holds out the promise of a lower death rate than ever before and a longer expectation of living than has ever been known in the history of the world."

Citing the increasing attention being given to the public care of health, and the spreading of medical knowledge, as factors which have already helped to add many years to the average life expectancy, Dr. William H. Welch, Dean Emeritus, School of Hygiene and Public Health, John Hopkins Univer-

sity, himself approaching the age of 80, sees no reason why twenty years cannot be added to the average span of life.

"Life has been lengthened materially, even in the last twenty years," says Dr. Welch. "The death rate in New York State has, in the last forty years, been reduced from 24 to 12 per 1,000. Cutting the death rate in half means the saving of thousands of lives yearly."

The present death rate can be further reduced and more years can be thus added to the average life-span of man, in Dr. Welch's opinion, by the utilization of recently acquired knowledge, close application of the accepted principles of hygiene, and improved working and home conditions. It is through the accumulation of small injuries that constitutions are constantly undermined and break down before their time. Dr. Welch says:

"If we call to mind how far the average duration of life falls below the possible duration, we see how immense is the loss. When, to the numerous partial deductions which bad health entails, we add this great final deduction, it results that ordinarily more than one-half of life is thrown away. Could we but add to our present years the hours, weeks and months of impaired health needlessly suffered, many of us would, within several decades, find ourselves living to be a hundred."

Dr. Dublin estimates that the aggregate preventable deaths annually cost the nation over six billions of dollars, and that the elimination of the factors responsible for these deaths will not only save the nation this annual loss, but raise the average expectation of life nearly ten years, an average duration of life which he believes is entirely possible for the American people.

"Less than fifty cents per capita probably represents the total expenditure of the American people for public health," says Dr. Dublin. "Expert opinion of public health officials indicates that an expenditure of \$2.50 per capita, wisely directed through organized channels against the preventable diseases and for public health education, would reduce the annual death rate two points per thousand and correspondingly increase the expectation from five to seven years."

Dr. Dublin says that only by intensification of efforts directed toward life prolongation will this goal be reached. The year 1927, he says, has been a record health year in the

history of the United States and Canada, and 1928 should be equally as good, always barring extraordinary conditions, if public health work keeps pace with the standard set in 1927. The 1928 baby will have a better chance for longer life expectancy than the infant born in 1927, only by increased efforts in public health.

The Canadian Dental Association



TWO important committees of the Canadian Dental Association have recently been organized, the one for the purpose of arranging for public dental health education, and the other to provide for Post Graduate lectures, and by other means bring a knowledge of the newer things in Dentistry to the busy dentist.

In each case the plan followed in the formation of the committee calls for a central executive composed of dentists in one of the Provinces and a representative from each of the other Provinces.

The committee on public dental health education will have as its chairman Dr. M. H. Garvin, of 314 Somerset Bldg., Winnipeg, Man. He will have associated with him Dr.'s F. E. Warriner, D. A. McCarten, H. C. Hadgson, C. J. F. Jackson and W. W. Wright of Winnipeg; and R. L. Pallen of Vancouver; R. J. Reade, Toronto; H. V. McCauley, Calgary; C. S. MacArthur, Truro; W. J. Mooney, Regina; and Ernest Charron, Montreal.

This committee is already at work, and they will welcome suggestions from members of the Profession in regard to the best way to reach the public, and also copies of material being used in the various Provinces.

Dr. D. P. Mawry, of 1411 Stanley St., Montreal, is the chairman of the committee on Dental Education. The other members of the committee are Dr.'s J. S. Dohan, J. S. Ibbotson and J. A. Thibaudeau of Montreal; W. S. Allen and Phillipe Hamel, Quebec; W. J. Lea, Vancouver; B. E. Brownlee, Winnipeg; Leslie McIntyre, Edmonton; Geo. K. Thompson, Halifax; J. A. Plunkett, Moose Jaw; and A. E. Webster, Toronto. The representatives from New Brunswick and Prince Edward Island upon both these committees will be named later.

Preventive Dentistry From the Viewpoint of the Radiodontist*

HOWARD R. RAPER, D.D.S., ALBUQUERQUE, N.M.
A SUMMARY.



TOOTHACHE is preventable. Ninety per cent. of people can escape it. Caries is not preventable in the same sense or in the same degree. Not 10% of all people can escape caries.

Practitioners of dentistry seem to be divided into two groups—dietitians and cleaners of teeth. The best the average dentist can do is to see to it that a patient gets a mixed diet and keeps the mouth clean. That will prevent some decay, but for the average person it will not prevent all decay. There is no method of cleaning that will prevent all decay in a large percentage of cases.

According to the dietitian a person who wishes good teeth must regulate the diet of his mother and grandmother before he is born, and we all know that no method yet devised of cleaning the teeth will prevent caries. But toothache can be prevented.

A man does not die in one piece from disease. Disease is the destruction of tissue, and when enough tissue has been destroyed, then the man dies. There is a wasting away in most of the fatal diseases, called by the physicians *cachexia*, which is a manifestation of this destructive process.

Caries is a disease and, consequently, is a *beginning* of death. It should be stopped as soon as possible. It starts by eating a hole in the crown of the tooth and reaches the pulp, causing inflammation, death and disintegration of that organ. Thence it proceeds to the bone, from which it may spread to any part of the body by metastasis, and, ultimately cause the disease of vital organs of the body, or even death of the whole organism.

Pulpitis is accompanied by sharp pain and is the first real sign that the disease has reached the circulation. To prevent this, cavities must be filled and kept filled. To quote a well-known slogan, "If you save the surface, you save all."

* This is a summary by the editor of Dental Digest of a paper read before the First District Dental Society, New York, February 7, 1927.

One important reason for the present number of pulpless teeth is because dentists do not find the proximal cavities until they are so large that they cannot possibly be overlooked. Radiographers have known this for a long time, for they see them in radiograms taken for other purposes, but radiograms have not been used extensively for examinations for caries in the past.

There are two reasons for this:—

1. The average dentist is not aware that cavities are overlooked. Tests have proved that he cannot find them by the ordinary ocular and instrumental methods.
2. Until recently it required from ten to fourteen exposures to radiograph all the teeth. This was a long and expensive procedure.

At the present time an interproximal examination may be made with seven, or even five, exposures. The upper and lower teeth are taken on one film. This, of course, shows only the crowns, but if the pulps of the teeth are kept alive, there is no need of examining the ends of the root. This examination should be periodic and its cost will be less than the treatment of one pulpless tooth.

There is a great deal of discussion about the prevention of caries and a great deal of discussion concerning the management of pulpless teeth. Caries is not being prevented and pulpless teeth are being retained or extracted according to the belief of the dentist and the wishes of the patient. For, after all, if a patient will not sacrifice a tooth and wishes it treated, the dentist generally complies. Toothache means the loss of the tooth or the retention of a member potentially dangerous to the organism as a whole.

By means of periodic radiographic examinations cavities may be detected and filled at an early stage and all danger to the pulp may be avoided.

Room For Difference of Opinion



NGERSOLL truly says: "All the mechanical ingenuity of this earth can not make two clocks run alike; and how are you going to make millions of people of different quantities and qualities and amount of brain, clad in this living robe of passionate flesh; how are you going to make millions of them think alike?"

Dentistry in Afghanistan

BY GEORGE CECIL, PARIS.

ROUGH-AND-READY METHODS.



PRIOR to the reign of the late Abdur Rahman, a more or less enlightened ruler, dentistry languished throughout Afghanistan. Even in Kabul, the capital, and in Kandahar, a town of considerable importance, the leading dentists were many decades behind the times. The village *hakim* (doctor), who looked after the oral health of the inhabitants, knew uncommonly little about dental science, while the anatomy of the jaw was a sealed book to him. Abdur could extract, though not always adroitly, and if, upon being requested to fill a gaping cavity, the practitioner (through ignorance) omitted to remove the decay, he saved his reputation by saying that extraction would be necessary sooner or later. . . . When, eventually, the offending tooth had to be sacrificed, it was barbarously loosened with a mallet and chisel, the forceps then being applied. An unpleasant experience.

Abdur Rahman, having been a political exile in Russia for several years, knew something of Western dental surgery, a subject in which he had always taken an interest. Soon after His Highness ascended the Afghan throne, he was seized with a most violent toothache, a malady which, according to the court *hakim* and every dental surgeon in Kabul, could only be cured by extracting five of the Royal (and decayed) teeth. The *Amir*, rather than entrust his mouth to a native practitioner's mallet and chisel, bade a trusted messenger ride hard to the neighbouring Indian frontier, there to communicate by telegraph with the nearest European dentist. A *lakḥ* of *rupees* (a huge sum in those days) was offered, together with an escort to Kabul, and, a week later, the white *sahib* arrived at the Palace. Two of the eminent patient's teeth, being very far gone, had to be extracted; the remainder, however, were filled, and greatly to the Potentate's satisfaction. The skilled operator, having been paid the promised fee, departed, safely reached India, and promptly left for his native Ireland. With a *lakḥ* of *rupees* in the bank further work did not appeal to him.

Abdur Rahman, convinced that oral hygiene in Afghanistan would be improved by the employment of practitioners with proper dental qualifications, ordered the dentists in every town and townlet to repair to a central spot, there to undergo a course of instruction at the hands of a Scotch dentist. The last-named had been procured, at a high salary, from India, and, his practice being insignificant, he was glad to leave it for a more congenial sphere. The professor's students, many of whom had left middle age far behind them, benefited from the newcomer's teaching; others, too old to learn, gave up dentistry and retired into private life. Upon the engagement having run its course, the Scotchman, handsomely rewarded by the Ruler, quitted Afghanistan.

FOR THE POOR.

The present *Amir*, who is all for progress, takes a special interest in the welfare of his subjects, and particularly in their physical health. Every village in the kingdom, no matter how small, is provided with a government surgery, where a native doctor, who possesses a fair knowledge of dentistry, performs extractions with skill and expedition. Should a decayed tooth baffle him, the suffering villager is dispatched to a qualified dentist, who does what is necessary, the State paying the fee. In the case of a well-to-do landowner, the doctor may not—except when travelling is rendered impossible—afford dental relief, dispensaries only being run for the benefit of the poor. Upon these occasions the patient must pay over a certain number of *rupees*, which are handed to the local magistrate, to find their way into the State coffers. Every now and then a parsimonious, though opulent, Afgan endeavours to evade meeting his obligation. He then is fined several times the amount of the fee.

In the capital there are several dental surgeons who inspire confidence. Tall, handsome, black-bearded, and wearing the *chupkūn* (single-breasted frockcoat), and picturesque astrakan cap, which never leaves the wearer's head, except when he is in the bosom of his family, or at night, Sheer Ali is both urbane and tactful. Mothers cheerfully entrust their children's mouths to his ministrations:—the little people are not afraid of him, since he knows well how to soothe them. No case is too difficult for the practitioner; when in doubt, he extracts, thus avoiding the sad consequences of ineffective treatment and

dangerous experiments. Sheer Ali's crown work is successful, and, the rich Afghan being partial to gold, many a mouth is plentifully stocked with the precious metal. Plates are strongly and neatly made and perfectly-fitting; teeth, plates of Paris, gold and so forth being procured from India. All the necessary accessories, in fact, come from Bombay, dealers supplying them, a local agent making the purchases, dispatching the goods by rail to the head of the Khyber Pass, and paying the bill—an important item. . . . Unloaded at the mountain terminus, the packages reach their ultimate destination by camel.

The Kabul and Kandahar dentists seldom administer gas, Mahometans having a strong objection, on religious grounds, to unconsciousness. Elsewhere the "Faithful" are less particular, especially in recondite hamlets, where there are no *mullahs* (priests) to call them to account. . . . The sufferer makes for the adjacent village, seeks out the doctor in charge of the surgery, and, if gas is administered, swears him to secrecy. All's well.

WHERE THE "HAKIM" RULES.

Despite the great advance made in dentistry since the days when Abdur Rahman had to send to India for a European dentist, the *hakim* still practices rough-and-ready methods. The majority of the *Amir's* subjects, living in the wilds, and being countless decades behind the times, are well content to avail themselves of a wandering physician's services. . . . "Our fathers, grandfathers, great-grandfathers, and even more remote ancestors, had their teeth drawn by the *hakim*. Why in the name of *Allah* (to whom be all praise!) should we do otherwise? . . . The question is considered unanswerable, particularly when it is put by the hamlet oracle, a man so venerable that none can tell his age. He may be ninety-five, or a hundred; perhaps a few years over the century.

Occasionally a successful Kabul dentist, anxious to explore remote parts of the land in which he lives, embarks on a tour. Intending to combine business with pleasure, he includes in his luggage dental paraphernalia, mounts a camel, and sallies forth. Halting for the night at a *serai* (travellers' rest-house), Sheer Ali learns that a rich landowner, who lives in a mountain fortress, is troubled with toothache. A letter, full of compliments, is dispatched to the lord of the soil, the enterprising writer hoping that he will be invited to call. The

reply being favourable, the dentist, exchanging the lumbering camel for a sure-footed pony, climbs, like Excelsior, upwards; he fills teeth, scales others, and extracts those which are beyond treatment. As a rule, no anæsthetic is used, for the land-owner, if not without rudimentary education, entertains a poor opinion of "new-fangled inventions." The intrepid man bears the horrid pain with composure:—a modern edition of the Spartan boy.

Although the male patient is a stoic, he does not object to the women of the household benefiting from humane dental surgery, provided an injection takes the place of gas. Moti bravely faces the prick of the needle.

Elections to Senate, University of Toronto

 HE regular quadrennial election of members to the Senate of the University of Toronto will be held this fall.

The following dental representatives are to be named: one member to be appointed by the Board of Directors of the Royal College of Dental Surgeons, the dental licensing body in the Province of Ontario; three members to be elected by the graduates in Dentistry, holders of the degree of Doctor of Dental Surgery of the University of Toronto, whether residing in Ontario or elsewhere; and four members to be appointed by the Council of the Faculty of Dentistry from among its number. The Dean of the Faculty is a member of Senate ex-officio.

Graduates are invited to forward nominations for the election of three of their number to James Brebner, Registrar of the University of Toronto. Ballots will be distributed by mail.

Lack of Purpose Rather Than Intellect!

 ANY people are not fitted intellectually to take advantage of a college education. They merely go through the motions, while robbing some worthier man of his chance for a higher education."

Problems of Research

GEORGE K. BURGESS, BUREAU OF STANDARDS,
WASHINGTON.



THE American dental profession has long been recognized throughout the world as pre-eminent. This outstanding position is due in no small measure to the excellence of our dental schools with their high standards of instruction, accompanied by the pride of accomplishment on the part of the members of the profession both within and without the schools. The profession in this country has also been fortunate in having not a few manufacturing concerns who have ever been eager and able to advance the dental arts by improvements in materials, processes and instruments. If, on occasion, there is too much emphasis placed on brand and proprietary product or process, this is a phase of development common to many branches of industry in the earlier stages, but it always gives way as the demand grows for exact knowledge on the part of the user.

RESEARCH AND STANDARDIZATION.

Research and standardization are becoming more and more to be recognized consciously as the basis for improvement, and there never was a time of greater activity in both these fields than now. This is true of the sciences underlying dentistry as well as of their manifold applications to the dental art, which may be considered to be really a branch or a combination of branches of engineering.

As summarized by Prof. E. C. Kirk, the rapid advances in the past 20 years have been along the general lines of vital and hygienic relations, accompanied by similar developments in technical and engineering features. Over a score of years ago, I had the pleasure of hearing Prof. W. D. Miller, an American, resident and professor in Berlin, when on a visit to Washington, lecture on the "Human Mouth a Focus of Infection." On a layman, this lecture made a great impression, and I gather that the work of Miller and his successors has also made a lasting and beneficial impression on the dental profession.

The development of x-ray technique strikes the layman as perhaps the greatest contribution of physics to dentistry, largely

*Read before the American Association of Dental Schools, Washington D.C.

as an outcome of the researches on septic foci of Sir William Hunter.

Not only are professors in our schools, practicing dentists and manufacturing firms engaged in research, but governments are also helping. I was interested to note the other day that the British Government supports at the National Physical Laboratory, an institution similar to our Bureau of Standards, a modest dental research programme, involving a sum of less than \$5,000 a year, covering such subjects as silver-tin amalgams, plaster of Paris and other materials used for impressions and models, and the development of a new synthetic substitute for vulcanite as a material for dentures.

The American Government, through its dental services for the Army and Navy, its Public Health Service, Veterans Bureau, and the Bureau of Standards, has also begun to take an ever increasing interest in dental problems, and very properly so, when we consider the economic advantage to the community of united effort to prevent disease, eliminate waste, and improve the health and well-being of the population. On the question of unnecessary loss of gold alone in dental practice, I am told this amounts to several millions a year. To prevent this waste, with the attendant loss of time, by concerted study of improvements in materials, technique and workmanship would seem worth while.

The Bureau of Standards, with its 70 or more scientific and technical sections, each concerned with a branch of physics, chemistry or engineering, is organized to help the professions and industries in matters relating to standards, specifications, testing and research. We have been able to do something for the dental profession and we hope to be able to do much more. Our activities are limited to the physico-chemical and engineering aspects in the research field and also embrace the formulation of standards for materials and technique.

REQUIREMENTS FOR A STANDARD.

When the requirements for a satisfactory standard are known it is in general not difficult to specify properties and tests which will guarantee these standard qualities, and, if it is possible to produce the commodity, efficiently, in compliance with these requirements, the Bureau's part in the development of the particular standard is completed. More often than otherwise the

properties of a satisfactory standard are not known. Such instances require careful studies of the problems involved.

These studies must include the interests of the users and manufacturers of the commodity in question. In the dental problems there are at least three parties to be considered; the patient, the dentist and the manufacturer. When a satisfactory dental specification is written it will include and safeguard these three interests.

NEED FOR AMALGAM STANDARD.

The need for specifications for these materials was recognized by the Bureau in 1919 when we were asked to assist in selecting a satisfactory amalgam of alloy for use by the Government. Ten alloys were offered. Each alloy was labeled as complying with the requirements necessary for perfect amalgam restorations. However, tests showed five, or one-half of the series, to be defective, by reason of permanent dimensional shrinkage. Since that date we know that one of these brands has been corrected and is, according to later tests, an expanding alloy. Last month we had to reject two alloys purchased by the United States Government for use in its dental work. Do I need to give further reason why the profession at large needs a specification and a certain amount of testing work done by the dental colleges in order that it may be sure of the value of its amalgam work? For a number of years we have wanted to make tests on amalgam failures which could not be explained by the faults of cavity preparation, improper occlusion or other recognized error of the operator. Dr. Souder tells me he sees a way to do this and, if we are successful, I am sure no further demonstration of these needs will be required.

TO MAKE THE SALIVA EJECTOR ALMOST NOISELESS IN OPERATION.—The noise produced by the continued running of the water-tap operating the saliva ejector, discharging the mixture of water and air into the spittoon bowl, becomes most wearisome. If a rubber tube connection from the discharge pipe be made to the waste pipe below the spittoon trap, the stream being taken directly into the waste pipe, the sound is almost nil. There is, when in use, a cushion of air, due to bubbles rising, which will not allow the bowl to be flushed whilst the saliva ejector is working, but the two processes are not required simultaneously.—FRANK D. LAMB, L.D.S.

The Importance of Our Summer Holidays



CAREFUL consideration of the following "Beacon Lights" may serve to insure the uninterrupted pleasure of your holiday outing:

Water Supply.—If you are holidaying in the Province of Ontario ascertain from the Provincial Department of Health the quality of the water supply at the location you select.

Milk Supply.—Take no chances with the milk supply. Unsafeguarded milk is a frequent source of the transmission of disease. If you cannot secure pasteurized milk where you are spending your holidays, protect yourself by simply bringing the milk to a boil and then having it quickly cooled and kept at as low a temperature as possible until it is used.

Flies.—Refuse to stop at any hotel or boarding house where they have flies in the dining room and kitchen. There is no excuse for this and flies are frequently carriers of the germs of disease. Nothing is too filthy for a fly to revel in and nothing is too dainty for it to feed on.

Mosquitoes.—Keep yourself protected from mosquitoes as far as possible. Choose a site that has sufficient elevation to be well away from the marshy ground or stagnant water where mosquitoes breed.

A good coat of tan.—Get your coat of tan slowly.

Has it ever occurred to you that the two, three or four weeks' holidays you take every summer are the most valuable weeks of the year, not only for yourself, but also for your wife and family, for your business and for your employer, inasmuch as this is the only opportunity you have for storing up reserve energy for the following year? However, much depends on the preparation for the holiday. Start planning early. Many people get almost as much pleasure out of planning for their holidays, with their family, as they do out of the holidays themselves.

Before leaving have everything adjusted in your home and business so that there will be nothing to worry about when you are away, and when you leave the city cut all wires behind you. We have advised people to not even read their home papers when they are away on a holiday.

Plan your holiday so that it will be an entire change from the routine of the year. For instance, if you are engaged in office work, or any work of a sedentary character, plan a holiday with plenty of graded exercise, in God's fresh air and sunshine, which are two of the most valuable therapeutic agents we have. However, do not overdo it. Spend at least two or three hours every day lying down and reading, completely relaxed.

THE VALUE OF A GOOD COAT OF TAN.

Most people are in too great a hurry to get bronzed, and the result usually is that the skin of the face, neck and arms, as well as other portions of the body not accustomed to being exposed to the sun's rays, becomes burned and blistered. This delays the procuring of a coat of tan as these blisters have to heal and then peel off before you can start afresh. In addition to this, it will materially mar the pleasure of your holiday for two or three days.

This applies particularly to blondes, inasmuch as they have a limited amount of pigment in their skin and they, therefore, burn rather than tan, and consequently have to be much more careful than do brunettes. Brunettes, as indicated by the darker color of their skin, have a much more plentiful supply of pigment and consequently tan very much more quickly and more substantially.

The skin should not be exposed to the direct rays of the sun for more than about half an hour in the forenoon, say between 10.00 and 12.00 o'clock, and the same length of time in the afternoon, between 2.00 and 3.00 o'clock, for the first two days. Then gradually increase to three-quarters of an hour, and so forth, until a substantial coat of tan begins to form. Once that is established, you are then free from danger so far as any blistering of the skin is concerned.

These precautions are very much more important now in view of the wonderful revelations in medical science during the past ten or twenty years, as regards the therapeutic or medicinal properties of the sun's rays, as has been abundantly demonstrated in certain specific diseases, such as rickets, tuberculous diseases of the joints and bones and chronic diseases, especially lupus. In fact, this latter disease is the one upon which Professor Finsen, of Copenhagen, did his first valuable work which enabled him to reveal to the medical profession

of the world the possibilities of ultra-violet rays. The general effect on skin disease is no doubt largely due to the germicidal powers of these ultra-violet rays. Most disease producing germs will only survive for a few minutes under the direct influence of these rays or under the direct influence of the sun's rays.

Just what the future will reveal as regards the further therapeutic value of the sun's rays is difficult to say. Dr. Rollier, of international reputation, has done most extensive work in the mountains of Switzerland in connection with various forms of tuberculosis. He claims, after from twenty to twenty-five years of observation, with approximately 25,000 patients, that the actinic or ultra-violet rays of the sun affect the entire body by their influence on the blood, inasmuch as they come in contact with the blood in the innumerable capillaries or small vessels supplying the skin. He has found that the exposure for a certain length of time to the sun's rays greatly increases the number of red blood corpuscles and thus materially eliminates the danger of suboxidation.

A very valuable piece of work in this connection has been done recently by Dr. Alan Brown and his colleagues in the Hospital for Sick Children in our City, in confirming the research work done in Europe as regards the valuable effects of the sky and cloud rays on a sunshiny day. They have been able to fully demonstrate that even on the shady side of a building, if the individual is directly exposed to the sky and passing clouds, on a sunshiny day, he will receive from one-half to two-thirds of the beneficial results of these ultra-violet rays that he would under the direct rays of the sun, plus the sky shine.

It is gratifying to know that this work in connection with the Hospital for Sick Children was made possible by the Ontario Department of Health through the instrumentality of Dr. Godfrey, Minister of Health.

SOME SUGGESTIONS REGARDING DROWNING ACCIDENTS.

It is a regrettable fact that one rarely takes up a morning paper after the middle of May or the first of June, in which there is not a report of one or more fatalities from drowning. The vast majority of these, in the final analysis, can be shown to have been preventable.

Ask yourself the question, before going on your holidays: "Can I swim?"

There is really no excuse for any person in Toronto not being able to swim, in view of the number of private and public baths that we have, where instructions are given in swimming.

If you cannot swim, bathe in shallow water, certainly not above your waist.

Make sure that your heart is sound. Most of the drowning accidents reported as the result of cramps, really result from heart failure. It is, therefore, extremely important that you consult your family physician as regards the condition of your heart before you do any swimming. This is particularly important if you are going to dive or swim in cold water. The exposure of the body to cold for any length of time materially increases the strain upon the heart.

Unfortunately many of the accidents from drowning are from canoes and, occasionally, from rowboats. All canoes should be labelled "For the use of swimmers only." Paddling a canoe is a delightful pastime, providing you keep in mind "safety first."

If you cannot swim, do not use a canoe, and if you can swim and are going out in a canoe, do not take anyone with you who cannot swim. You never know when a squall may come up, or even the reckless moving of some one of your companions may upset the canoe, and the result only too frequently is that in your effort to save your friend, who cannot swim, you are dragged down and two lives are sacrificed instead of one.

JUST A WORD ABOUT THE ROWBOAT.

With reasonably intelligent people at the oars, there should be but little danger of the upsetting of the rowboat. However, one sees occasionally those "mentally defective people," because I think that they should all be styled as such, who will stand up in a rowboat, when far from shore, and even change places, or endeavour to change places, with someone else in the boat.

Decide where you are going to sit in the boat before you leave the shore, then settle down and remain there until you return to shore.

Why take chances when it is so easy to avoid these accidents?—*Department of Public Health, Toronto.*

Apicoectomy*

CHALMERS J. LYONS, D.D.Sc., ANN ARBOR, MICHIGAN.



IT will be the object of this paper to again call attention to the possibility of the eradication of those morbid conditions about the apical ends of certain tooth roots caused by devitalization, by some other means than the extraction of the tooth.

It must be clear to all that when there is disease and death of the pericemental membrane in the apical area, our present therapeutic measures are insufficient to put that region of the mouth in the best possible condition for the future welfare of the patient.¹

For the purpose of discussion, the foregoing statement will be assumed to be true, and if it is true, in the treatment of this class of cases, surgical procedure must be the one of choice. The surgical procedure may be accomplished in one of two ways: (1) by extraction of the tooth; (2) by opening through the mucoperiosteum and external alveolar plate in the immediate vicinity of the diseased root end and mechanically removing the diseased portion of the root with its pathologic involvement. It is the latter procedure which will be here discussed.

We approach this subject with the full realization that many conscientious operators have an honest doubt as to its practicability. After ten years of careful experimental work and close observation of the cases in which we have operated, we believe, under certain limitations, to which your attention will be called, that this operation is sound.

Those of you who, after reading the voluminous literature on the pulpless tooth question during the last decade, coupled with your own clinical experience and observations, are still of the opinion that every pulpless tooth becomes a menace to health and cannot be made safe for the individual, we shall not try to convince.

To those of you who believe that certain pulpless teeth can be sterilized, we submit this operation as sane for some of

*Read before the Section on Exodontia, Anesthesia and Roentgenology, at the Seventh International Dental Congress, Philadelphia, Pa., Aug. 26, 1926, and published by courtesy of the Journal of the American Dental Association.

1. Lyons, C. J.; Surgical Technique of Apicoectomy, J.A.D.A., 7: 700 (Aug.) 1920.

those morbid conditions for which therapeutic treatment *per se* will not suffice.

Several years ago in the study of this subject, at the University of Michigan, U. G. Rickert and I established four fundamental principles for this operation.² 1. Diagnosis of the case. 2. Sterilization and filling of the root canals. 3. Resection of the diseased portion of the root and curettage of the diseased area. 4. Sealing the end of the root, with its exposed tubuli, with a substance which would effectually protect the root end and would not retard the process of repair.

In the whole consideration of the pulpless tooth problem, the question of diagnosis is the most important one, and the one usually given the least attention. All too frequently, the dentist sees just the tooth instead of the patient.

In the study of the indications and contraindications for the operation, the following factors must be considered: (1) the present state of health of the patient; (2) past illnesses; (3) the possible recuperative or reserve force of the patient; (4) roentgen-ray evidence, and (5) the accessibility of the tooth involved.

One of the causes of failure in this operation has been that, in the endeavour to save a beautiful restoration by root resection, the vitality of the patient has not been considered. Past illness may have so lowered the resistance of an individual that the normal process of repair will at least be retarded, if not so interfered with that failure will be the result.

From the factors which help to make up our diagnosis, we should learn something relative to the possible recuperative forces of the patient. Here, the age of the patient must be considered. With any wound or operation in the aged, the process of repair is slow, and the prognosis in the repair of bone is not so favourable as in the young.

This operation is contraindicated in patients of advanced years. It would be questionable whether the cavity resulting from the operation would be filled in with normal tissue. In making an analysis of the possible reserve force of the patient, the condition of the blood as an important factor. Any of the wasting diseases, such as anemia, tuberculosis and diabetes, lead to a state of constitutional dyscrasia which will have a profound influence in preventing repair after this operation.

2. Lyons, C. J., and Rickert, U. G.: Surgical Consideration of Pulpless Teeth, *Internat. J. Orthodon.* 9: 288 (April) 1923.

Without a certain definite blood supply surrounding the field of operation, normal repair will not take place. Notwithstanding the fact that the tissues surrounding the teeth have a very rich blood supply, in certain types of individuals, under certain pathologic conditions, it will not be sufficient to produce normal repair. Before determining whether root resection is indicated, let me repeat: let us study the individual, not just the tooth.

The fourth factor to be considered in making a diagnosis is that of roentgen-ray evidence. After all the discussions to the contrary, many dentists, in making a dental diagnosis, are pinning their whole faith to the roentgen-ray film. Frequently, the roentgenogram is misleading. Keep in mind that, in the roentgenogram, we are looking at shadows and not at the pathologic area, and the film should be used only in checking up the history and clinical findings in the case.

The fifth factor that we have mentioned in making our decision as to the indication or contraindication for this operation is the accessibility of the tooth involved. We can all agree that the anterior teeth are of greater value to the average individual, especially from the esthetic point of view, than are those in the posterior portion of the mouth, and a greater effort should be made to save them. The fact that these teeth are more accessible gives the dentist a better opportunity for sterilization and filling of the root canals. Because of the accessibility of these teeth, a clean surgical operation may be made. For the foregoing reasons, we believe that these operations should be limited to the single rooted teeth, and performed then only when the involvement does not extend beyond the apical third of the root of the tooth.

The operation should never be made simply with the idea in mind that a beautiful crown or bridge abutment showing pathologic involvement at the end of the root may be saved by the procedure itself. If the root end is infected, the probabilities are that the whole root canal and tubuli are involved. All the infection, not only at the root end, but also in the canals and tubuli, must be eliminated before normal repair can be expected.

This brings us to the second principle underlying this operation, that of sterilizing and filling of the root canals. It will not be a germane to this paper to enter into a discussion of the methods and procedures of sterilization and filling of the root

canals. Suffice to say that this operation should always immediately precede the operation of apicoectomy. The important point is to know that the root canal is sterile and thoroughly filled. Any of the well known and accepted methods for the procedure may be employed.

Our next principle, and the next step in an apicoectomy, is the resection of the diseased portion of the root and curettage of the diseased area. The technique of this operation has been so thoroughly and fully described and illustrated in textbooks³ and papers⁴ that we do not deem it necessary to go into details of the technical procedure here. However, a brief review may not be out of place.

Under conduction or infiltration anesthesia, a mucoperiosteal flap is laid back immediately over the end of the root to be resected, exposing the external alveolar plate. By the use of sharp chisels under hand pressure, a sufficient area of the alveolar plate is removed so that the infected crypt and the apex of the tooth root are exposed. The resection of the root end is made at the floor of the crypt and the root of the tooth is cut down to healthy tissue. We have found the Henahan surgical drill No. 4 a very convenient instrument in cutting off the root end. The resected end is now lifted out of the crypt and the pocket thoroughly curetted with spoon-shaped bone curettes. A large round burr is next used to smooth off the sharp edges of the alveolar plate and to cut the end of the root and the base of the crypt down to healthy tissue. The cavity and root end are then polished with a gold finishing bur.

We are now ready to carry into effect the fourth fundamental principle of the operation, i.e., sealing up the end of the root. For the past ten years, we have been reducing silver over the exposed root ends, and it seems to have met all of the requirements of completely sealing up the end of the root and does not interfere with the process of repair. This procedure is accomplished by dissolving a few crystals of nitrate of silver in ammonium hydroxid until the fumes of ammonia have disappeared. This gives a slightly cloudy amber liquid. The silver nitrate is reduced to ammoniacal silver oxid. A small pledget of cotton is used to carry the

3. Thoma, K. H.: Oral Abscesses, Boston, Ritter and Company, 1916.

4. Ely, L. W.: Bone Formation and Bone Pathology, California State J. Med. 18: 21 (Jan.) 1920.

solution to the restricted end of the root, which has been previously dried. The silver oxid is then precipitated by means of a worm burnisher or by eugenol. After two or three applications of the ammoniacal silver oxid, followed each time by precipitation, the end of the root becomes perfectly black from penetration of the silver.

The walls of the crypt are now agitated until the crypt is filled with blood, and the mucoperiosteal flap is returned to normal position and sutured.

POSTOPERATIVE OBSERVATIONS.

Just what takes place in the repair of the wound after this operation is what interests us most. It has been our observation that the repair of bone after this operation does not differ from bone repair in any other part of the membranous bones. Neither does the repaired bone differ materially from the normal bone surrounding it. In the roentgenogram, we see the regular trabeculæ and marrow spaces, which would indicate a blood supply similar at least to normal bone. In opening into these areas periodically from six months to several years after the operation, we find that the formation of new bone seems to be clinically identical with that adjacent to the old wound. From our bacteriologic findings, this new bone has remained sterile. We believe that if the principles above referred to are carried out, an operation may be performed that will favour normal repair.

There are three requirements for bone repair, all of which occur in these wounds: (1) blood supply; (2) building material; (3) stimulus, physiologic or pathologic.

The rich blood supply in the maxillæ and mandible amply provides for the first requirement in the regeneration of new bone.

Immediately after the operation, the cavity resulting therefrom becomes filled with a healthy blood clot, which becomes the building material, or scaffolding, through which the new bone forms.

The third requirement, that of a stimulus, is provided for by the trauma of the operation itself. The final result should be the regeneration of new bone similar to that adjacent to the area of repair, the eradication of the infected area and the saving of the tooth for many years of usefulness.

Questionnaire Forwarded to Ontario Dentists



THE Board of Directors of the Royal College of Dental Surgeons, at the request of the Faculty of Dentistry, University of Toronto, is sending the following questionnaire to every ethical dentist in Ontario. The information which the answers to the questions will supply, will prove of great assistance to the Board, to the Faculty and to the Oral Hygiene Committee of the Ontario Dental Association. It is hoped that the questionnaire will give each body such accurate knowledge, that they will be able to plan and successfully carry through undertakings which will be to the benefit of the dentists in the Province and to the Profession as a whole. No attempt will be made to ascertain the identity of the person giving the information and the knowledge obtained will be used only in the interests of Dentistry.

In a circular letter accompanying the questionnaire the members of the profession were urged by Dr. Willmott, Secretary of the Board, to return the questionnaire as soon as possible and suggesting that by so doing, a substantial contribution would be made to the advancement of the Profession and the increase of its service-rendering power.

QUESTIONNAIRE.

1. Year of graduation
2. Do you practice in a village, town, or city?
3. Population of district from which you draw your practice
4. Number of dentists in this district
5. Do you employ a lady assistant or nurse?
6. To what extent are the people educated to an appreciation of the value of dentistry?
7. What percentage of your patients cannot pay regular fees?
8. What percentage of your patients cannot pay any fee?
9. Your gross income
10. Your net income
11. (a) Do you take case histories?
- (b) Do you make a complete mouth examination?
- (c) In determining treatment do you take the general health of the patient in consideration?
- (d) Do you make a prognosis?
12. (a) Do you test all suspicious teeth for vitality?
- (b) Do you have all non-vital teeth x-rayed?
13. (a) Do you attempt to treat abscessed teeth?
- (b) If so, under what conditions
14. (a) Do you practice devitalization of pulps?
- (b) By what method?

ORAL HEALTH for August, 1928

15. (a) What root canal fillings do you do?
- (b) What percentage of failures do you have?
16. (a) Do you cap exposed pulps?
- (b) What percentage of failures do you have?
17. Do you insert gold foil fillings?
18. Have you found pulps becoming devitalized under one filling material more often than under another?.....
19. What methods do you use to relieve pain in working on sensitive teeth?
20. (a) Do you encourage patients to bring children of pre-school age to the office for periodic examination?
- (b) Do you fill deciduous teeth?
- (c) Do you fill pits and fissures before decay starts?
21. (a) Do you advise parents in regard to preventive orthodontia for their children?
- (b) In cases of premature extraction do you use space-retainers?
- (c) Do you treat cases of irregularity?
22. (a) Do you treat Periodontoclasia (Pyorrhea)?
- (b) By what method?
23. (a) Do you use nerve blocking anaesthesia?
- (b) What form of general anaesthetic do you use for the painless extraction of teeth?
- (c) Do you attempt the removal of impacted teeth?.....
- (d) What means have you at hand for restoration of patient in case of collapse?
- (e) Do you practice curettage?
- (f) Under what circumstances do you bring your patients back for observation and after treatment in surgical cases? ...
24. What materials and what method do you use in taking impressions for:—
 - (a) Full dentures?
 - (b) Partial Dentures?
 - (c) Bridges?
25. Do you advise:—
 - (a) Fixed bridges?
 - (b) Removable bridges?
26. With what articulator have you obtained the best results?....
27. To what extent do you employ the services of commercial Laboratories?
28. What percentage (in time) of your practice is devoted to Prosthetic restorations?
29. What is the average fee in your community for (full upper and lower) vulcanite dentures?
30. What method do you use to determine your fees for all classes of work?
31. Do you expect your patients to pay a retained fee?
32. (a) What records do you keep?
- (b) Do you use charts, models, or drawings in your operating room in presenting to the patient his need for dental treatment or replacements?
33. Do you periodically notify your patients to return for examination and advice?
34. (a) Do you instruct your patients in regard to diet, proper mastication and mouth toilet?
- (b) Do you charge a fee for this advice?
35. Do you make Bacteriological tests?
36. Do you use a microscope for examination of smears?
37. Is it advantageous for the practising dentist to have a knowledge of the composition and physical and chemical properties of dental materials?
38. Do the Physicians and Dentists in your community co-operate?

39. In what percentage of cases have you noticed outstanding improvement in a patient's physical or mental condition following dental treatment?
40. (a) Is there need for public dental health clinics in your community?
- (b) Is there need for public dental health education in your community?
41. (a) Do you make use of the Harry R. Abbott memorial and the Faculty library?
- (b) How can its usefulness be improved?
42. (a) Have you had trouble from your feet or legs from standing?
- (b) Do you use an operating stool?
43. Do you use the consultation service provided by the Faculty?
44. (a) Is there a local dentist society in your County?.....
- (b) Does the society take advantage of the extra-mural lectures?
45. How can the Faculty of Dentistry be of greater assistance to the dentists of the Province?
46. Can you suggest methods which have proven of service in your practice that are not in general use?.....
47. What special equipment have you that you can recommend to your fellow dentists?

Pupils Who Fail and Teeth Which Decay

By W. A. SUTTON, *Superintendent of Schools, Atlanta, Ga.*



ABOUT ten years ago, there was sent to me a sort of round robin signed by seven teachers, about a certain boy in the school of which I was then principal. It was in a rather respectful way and yet I caught it very clearly that I could expel such-and-such a boy from the school, or I could accept their resignations.

I had had a great deal of trouble with the boy. He had been sent to the office time and time again.

I sent for him. He came into my office, and I said, "Here, Woodruff, you read this." He read it. I said, "You know I can't get rid of seven good teachers, and, son, you'll have to go home. That is the ultimatum and you have decided the question yourself." To my utter astonishment the boy began crying.

He said, "Professor, if you turn your back on me, I haven't got a friend in the world."

I said, "You know that's not so. You've got a mother and father," I noticed when he was crying that his teeth were

bad. I said, "Come in here." I took him into the light and opened his mouth.

It was the foulest mouth, I think, that I have ever seen in all my life. There came a flash into my mind of another way I might save that boy, because that was my whole idea.

I said, "I'll tell you what I am going to do. I am going to write these teachers a note. I am going to say that I think your teeth are responsible for your bad conduct and that I will not expel you from the school until you have your teeth fixed and I will do that only on a promise from your father and from you that you will go this afternoon and start to have those teeth put in good condition."

I called the father on the telephone and the father promised and the boy promised. I sent a note to the teachers. That boy stayed with us for two and one-half years, graduated with distinction, went to Georgia Tech. and graduated from Georgia Tech. and he is in the State highway department of Georgia to-day. He is making a fine salary.

From that day to this, I have never had a single word as to his misconduct. The whole trouble with that boy was that every front tooth and may be some of the back ones in his head were practically rotten. There was a nervous and a diseased condition as a result that made it impossible for him to do the work that he ought to do, made it impossible for him to sit still, made it impossible for him to be obedient; and he was about to be expelled from school.

In the state of Georgia we have 258,000 children in the first grade; in the second grade we drop to about 128,000; and in the third grade we drop to about 80,000. In other words, in the first grade, we have more than twice as many children as we have in the second grade, and in the first grade we have three times the number of children that we have in the third grade.

In other words, it is taking the average child in Atlanta two years to finish the first grade.

If you inquire as to when these children's teeth are dropping out and when they are having trouble getting their teeth back, you will find it is right there in the first grade.

Of course, other things like measles and such things are to be taken into account too; but it is one of the most important periods in the child's life as far as his teeth are concerned. Georgia to-day is paying for the teaching of at least 100,000

children in the first grade two years, where we ought to teach them just one.

I went into school and took 18 children. We had 18 grades and teachers in that school. I said to each teacher, "Give me the worst pupil in that class, the child whose morals and lessons and home conduct are worst."

I sent each one to a dentist in our city and asked those dentists if they would not take two of these children. I said to the visiting teacher, "On every Tuesday afternoon, I want these 18 children taken to these dentists, and I want them to continue these visits until their teeth are put in A1 condition."

I said to the teacher, "Keep a record of the weight and height and growth and physical developments of the children. We took their pictures at the beginning and at the end of the term.

When he had finished the experiment, 18 children who the previous year had not passed in a single subject, who were repeating the whole grade, had but one subject failure in the whole group, one subject in which one child failed, and the rest of them passed in everything.—*Popular Health Magazine*.

Minimizing Pain*

W. P. SMEDLEY, D.D.S., DENVER, COLORADO.



It is not the aim of this paper to suggest that pain can be, or that it is even desirable that it should be, eliminated from the practice of dentistry. Pain is not an unmitigated evil, as most of our patients pretend to believe, but, on the contrary, is a useful function of the nerves contained within the pulps of the teeth and the investing tissues. Nevertheless, valuable as it is as a diagnostic guide to the dentist, and as a warning and a driving force for the patient, there should no longer be enough pain caused by any dental operation to afford an excuse for the time-honored jokes about the dentist and his "torture chamber."

The baneful effects of pain and the fear of pain are indeed far reaching. Not only is the dentist hampered in his work because of a "moving patient" and the completeness and

*Read before the Section on Operative Dentistry at the Seventh International Dental Congress, and published by courtesy of the Journal of the American Dental Association.

efficiency of his operation curtailed because of the limitations of patients in bearing pain, and, reflexly, his own limitations in inflicting pain, but, what is far more important, the dread or fear of pain keeps many potential patients from the dental office until pain finally drives them to it; when it is always too late for prophylactic treatment, and is frequently too late for desirable constructive treatment. The fear of pain nullifies the dentist's greatest potentialities, when he is thus forced into the position of having to treat sick teeth which can never be well, rather than affording him the opportunity to treat well teeth so that they may never be sick.

The fear of pain has long been capitalized by the charlatan. His method of making good his alluring advertisements has been by the application of arsenic to healthy pulps or dentin, or by placing filling material in a slightly prepared cavity, enclosing a mass of carious dentin, which more slowly, but just as inevitably, continues to decay to the ultimate destruction of the pulp and the tooth; or still worse, by covering a tooth with one of his abominable gold crowns. By leaving undisturbed any carious dentin that might be present and dividing the grinding between the tooth to be crowned and the adjoining tooth, space for the band is obtained without reaching the dentin, and the advertised painless operation is achieved. To be sure, the gingival irritation surely established, and the traumatic occlusion almost inevitably produced, assure plenty of pain eventually, and the loss of the tooth at a no very distant date. The methods of the quack have always been so distasteful to ethical dentists that many of them have seemed almost to pride themselves on not doing "painless" dentistry.

It is to be deplored that, while anæsthesia was first introduced by men of our profession, dentistry has lagged sadly behind the medical profession in its efforts to relieve patients of unnecessary suffering; and while Dr. Wells introduced nitrous oxide in 1844, and Dr. Morgan followed with ether, in 1846, it has not been until very recent years that any considerable proportion of the dental profession has really made a conscientious effort to abolish needless pain. It would seem, moreover, that even yet there remain many dentists who neither know nor care what has been accomplished along the line of anæsthesia, and, because it is almost impossible thoroughly to excavate a cavity when a tooth is extremely sensi-

tive, even though the patient may endeavour to stand it, much carious dentin is left by these ethical men; with only relatively less disastrous results than that of the charlatan.

HISTORY.

The effort to relieve pain is no new thing. Guerini, in his "History of Dentistry," assures us that the minimizing of dental pain was treated in the Ebers papyrus on the seventy-second page. He tells us also that some of the writings of which the Ebers papyrus is composed date back to 3,700 years before the Christian era. To be sure, the herbs and incantations which were used at that time were not employed to minimize the pain of dental operations, but to minimize the pain of dental disease.

The historical aspects of the subject may be considered in three phases: (1) minimizing pain by prevention of extensive dental disease; (2) minimizing pain during dental operations; (3) minimizing postoperative pain. The first of these is what we are pleased to call 'preventive dentistry.' We may think that "preventive dentistry" is a relatively new thought, but on page 89 of the same papyrus, we find a prescription for a remedy, "To strengthen the teeth;" i.e., to render them less liable to disease. The second, minimizing pain during operations, is undoubtedly of less ancient origin, since Guerini says, "One finds no mention of dental surgery in the Ebers papyrus."

Dental art in Egypt had made remarkable progress by the fifth century before Christ, and, in all probability, dental operations were performed before that time. We may assume, therefore, that some effort was made as early as this to minimize pain during operations, because patients were probably not much more heroic at that time than now. In speaking of filling with lead, Fauchard says, in his book which was written in 1723, "If the sensibility of the caries be too great, the lead ought only to be pressed very lightly at first, then after one or two days a little more, continuing until it is properly compressed or fitted in, always provided, of course, that the pain does not increase." This, you see, is minimizing pain during dental operations. Minimizing post-operative pain is treated by the same author, his final treatment being extraction.

We now come to the consideration of three phases of present-day practice in minimizing pain.

1. *Minimizing Pain by Prevention of Extensive, or Any, Dental Disease.*—Minimizing pain for the child by starting with the expectant mother seems a far cry, but it is the logical place to begin. While we cannot hope to overcome entirely the trend of generations, the mother can, by living on a diet rich in mineral salts, provide enough of the needful salts to build up the bony framework of her unborn infant and start well-calcified teeth and do so without robbing her own system. She thus not only minimizes for the child the liability to caries, and the pain incident to it, but also renders her own teeth less liable to the caries which so frequently accompanies pregnancy. If it is at all possible, the infant should be breast fed, and, when a few months old, should have orange juice and vegetable water added to its diet. As the child grows, it should have a diet with a goodly portion of milk and a substantial amount of fresh fruits, green vegetables and whole-wheat bread. This, together with plenty of exercise and fresh air and sunshine, along with mouth cleanliness, will certainly minimize pain for that child, by decreasing the necessity of dental operations.

Another way in which mothers may help to minimize dental pain for their children is to refrain from instilling into their minds a horror of dental work. A fear that may never be entirely outgrown is often established when the child "listens in" while mother and her friend try to outdo each other in relating terrible experiences at the dentist's. This, supplemented, perhaps, by an occasional threat to take him to the dentist if he doesn't behave, goes a long way toward making big cavities out of little ones.

Present-day orthodontia, with its results of producing normal occlusion, is a potent factor in minimizing pain; for we all realize that teeth in normal occlusion are much less subject to caries, traumatic occlusion and periodontoclasia.

Prophylaxis, at the hands of the dentist, together with scrupulous care of the teeth by the individual, while not producing 100 per cent immunity from caries, will undoubtedly reduce the amount. The work being done by Dr. Bunting at Ann Arbor seems to offer hope in the matter of the control of caries and minimizing pain through prevention.

The roentgen ray, used as a diagnostic agent, is a valuable aid in minimizing pain; for it must be admitted that one of the best ways to control pain in dental operation is to control

the necessity for extensive operations, and it is in this role that the roentgen ray can play one of its most important parts. It discloses incipient caries at contact points, under marginal gingivae and under fillings, before detection is possible by other means. The early discovery of caries, of course, obviates the necessity of excavating deeply toward the pulp in the preparation of cavities, and it precludes the necessity for as large a metallic filling in a given case; all of which tends to minimize pain during the operation and subsequently thereto. If there is an objection based on time or expense of films, this objection may be largely overcome by the use of the interproximal films suggested and perfected by Dr. Raper.

2. *Minimizing Pain During Operations.*—This phase of the subject is the most appealing to our patients, if not the most important. The earlier efforts were confined almost entirely to tooth extraction, the general anæsthetics, nitrous oxid, ether and chloroform being the agents available. Nitrous oxid, the first substance used to produce complete insensibility to pain, is still the most useful of the group, despite many vicissitudes. After the introduction of chloroform in 1847 and the death of Dr. Wells in 1848, its use was largely abandoned for nearly twenty years, when it was reintroduced and came into quite general use, and it has never since entirely lost its place, in spite of the advent of ethyl chlorid, cocain, somnoform, procain and many others. The comparatively recent use of oxygen in combination with it has, of course, greatly enhanced its value and widened its field of usefulness. For years, many dentists with a sympathetic nature and a proper understanding of the importance of the thorough removal of all trace of caries have made a persistent and conscientious effort to desensitize dentin without resorting to general anæsthesia. Numberless efforts were made, and many of the methods are still useful, and should be used in given cases, in spite of the unquestioned efficiency of the procain injection, either by block, infiltration or interosseous method. Sharp instruments, skilful technique and good psychology in many cases are all that is required, but, in many more cases, they are quite futile. Thorough dessication of the cavity has proved helpful, as has also working under a stream of water at 115 F. Many methods were tried to force cocain, and later procain, into the dentin. They have been used with some success when incorporated with essential oils; and when

dissolved in acetic ether, considerable penetration is gained. Cataphoresis as a driving force had its day, followed by the use of the Wilcox-Jewett and other high pressure syringes. These served very well when properly used.

Various densitizing pastes were quite freely used for a time, but their use has been largely discontinued because of the detrimental effect on the pulp. Chloroform analgesia has been used with some success for many years, and nitrous oxid and oxygen analgesia had quite a vogue a few years ago, as a result of an active selling campaign by manufacturers.

The introduction of procain, by Dr. Einholm in 1905, gave us a safe and thoroughly satisfactory substitute for the treacherous cocain and made the block anæsthesia, as reintroduced into this country by Dr. Fischer in 1913, a real boon to suffering humanity and the profession. Dr. Smith's masterpiece on the subject of anæsthesia, supplemented by writings by many other men, notably Dr. Posner's primer recently published, leaves no plausible excuse for any dentist to cause his patients serious pain during dental operations.

The mandibular injection is conceded by all to be the only effective means of anæsthetizing the mandibular molars, and it is the best for all the mandibular teeth, with the possible exception of the incisors, which can be quite readily handled by infiltration. The zygomatic tuberosity injection is simple and it is the most efficient means of anæsthetizing the maxillary second and third molars, and sometimes the first molar. The other maxillary teeth can be readily anæsthetized by the supra-periosteal injection over the apex of the root. To avoid the disagreeable sensation in the lip and cheek incident to the infiltration method of anæsthesia for the maxillary incisors, cuspids, bicuspid and first molars, and to obtain immediate anæsthesia, the interosseous injection, as advocated by Dr. Griffith some years ago, is simple and very satisfactory. This is accomplished by injecting a drop of procain solution in the septal gum tissue, then using the same opening, reaming through the outer plate of process and the cancellous portion of the alveolus to a point near the apex of the root, using a twist canal reamer with thumb and finger. The needle being reinserted, a very small amount of procain gives immediate anæsthesia, and if, as is possible in making a porcelain jacket crown preparation, the operation should outlast the anæsthesia, it is simple to add a few drops of procain through the same

opening. There is little or no discomfort or after-pain from this method. To be sure, injury of the pericementum will cause after-pain, but there is no excuse for such injury with the radiogram to guide us.

In many cases, pressure anæsthesia is the most efficient method and should be used in preference to an injection. Where access may be had to a healthy dentin, without needless destruction of tooth structure, as in an occlusal pit, which is to be included in the ultimate cavity, it is an ideal method. A small pit is drilled into sound dentin where pressure can be applied directly toward the pulp against the ends of the freshly cut dentinal tubuli. A short cone-shaped piece of baseplate guttapercha is attached to the end of a stiff plugger, about the same diameter as the bur used in drilling the pit. The pit is filled with a saturated solution of cocain, the tip of the guttapercha point is softened in the flame and pressed into the pit. The stiff portion of the guttapercha backed up by the plugger serves as a plunger to force the anæsthetic through the tubuli. Underlying secondary dentin would prevent complete success. This method is particularly applicable to gingival cavities where the pit can easily be drilled through into sound dentin. The momentary pain caused by drilling into the dentin only makes the patient more keenly appreciative of the total absence of pain thereafter.

Some men, in their enthusiasm for the use of procain, are prone to employ it in injection in all cases, as a routine practice, thus losing the diagnostic value of sensation in the tooth, and frequently injecting to the annoyance of the patient without justification. An injection should never be made until both the patient and dentist are convinced that more discomfort will be avoided than caused by the procedure.

The roentgen ray comes into play in this second phase by showing the size and contour of the pulp, so that encroachment on it can be avoided in forming cavities, preparing for bridge abutments, jacket crown preparations, etc., thus discounting the excuse offered by many for not using anæsthesia for this purpose. It also well shows the relation of caries to the pulp in proximal cavities, so that proper protection can be provided.

Pain, other than that in the teeth themselves, may be inflicted in many ways by the thoughtless and careless operator. The careless application of mechanical separators,

carrying rubber dam too far under the septal gingiva, the use of misfitting clamps or misapplying the right clamp, the unskilful use of ligature, all inflict pain, and moreover cause permanent injury to the soft tissues and perchance the teeth.

Much discomfort can be avoided in gaining access to the posterior teeth by reaching into the mouth and drawing the tissues outward and backward instead of placing the thumb, finger or mouth mirror in contact with the skin and rolling the tissues inward, as is too often done. A chafing of the skin and actual sores at the corners of the mouth often result from this carelessness. A great deal of irritation to the lips and that portion of the face to be subjected to undue stress can be avoided by lubricating them with an ointment of sterile petrolatum (vaseline) and bismuth subnitrate, i.e., petrolatum heated to 112 F., with $33 \frac{1}{3}$ to 50 per cent. bismuth subnitrate added; a formula suggested by Dr. T. J. Gallaher of Denver. This can be kept convenient for use in a collapsible tube. It is particularly helpful when taking full plaster impressions.

Perhaps, with the exception of procain, the agent which has afforded the greatest comfort to patients in our practice is a sedative cement which we have used in practically the same form for more than twenty-five years, the ingredients of which are eugenic acid, thymol, iodine, zinc oxide and bismuth subnitrate. With its use as a capping material, the normal function of practically all of the fairly healthy exposed pulps has been preserved; not only the pain and annoyance of pulp extirpation and canal filling being avoided, but also toothache or focal infection and its almost limitless train of painful sequelæ; extraction, replacement, etc., that would have been the inevitable result of our share of the root canal failures. This preparation has made pulp conservation practically as safe and sane a procedure as any other dental operation, especially in view of the fact, which has within recent years been indisputably proved by Dr. Noyes and others, that dental pulp tissue contains a complete system of lymphatics and consequently has the same recuperative and eliminative capacity as other tissues of the body.

Because of the soothing and non-conducting properties of this sedative cement, it is desirable as a lining of practically all cavities. If the pulpal walls and the undercuts are thus filled when the cavity is prepared, the pain incident to the removal

of a temporary filling and the cementing of an inlay at the subsequent sitting is largely avoided. In cavities which are not deep enough to permit of a permanent layer of this cement being placed at the first sitting, it is well to use as a temporary filling this same material with the addition of from 10 to 15 per cent. of resin. Mixed with cotton or asbestos fibers, it may be used to advantage as a pack around the necks of sensitive teeth after the surgical removal of gum tissue for the elimination of pyorrhea pockets, as a pack in open sockets after extraction and for the protection of roots that have been prepared for crowns. A thread of cotton impregnated with this paste and placed carefully on the gingival seat prepared for a porcelain jacket before the placing of a temporary crown of silicate cement affords complete protection to the gingival tissue and to the sensitive dentin typical of this portion of the tooth.

3. *Minimizing Postoperative Pain.*—Postoperative pain is ordinarily thought to refer to the pain following a surgical operation, but it should and does just as truly refer to pain, or even what is called discomfort, which so frequently is a sequence to restorative operations. Minimizing postoperative pain consists of doing most of the things mentioned under the first two headings, and, in addition, some things now to be mentioned. Postoperative pain in the surgical field can be largely avoided by skill in the operation, the use of sharp chisels, to avoid crushing bone, and careful manipulation to avoid bruising and lacerating the soft tissue, thorough removal of sharp edges and loose particles of process and all soft tissue unavoidably crushed or lacerated. Administration of analgesic drugs, use of high frequency current, are each and all important in minimizing postoperative pain. Here again, in this third phase, the roentgen ray is valuable, not only in avoiding undue injury during difficult extraction but also in locating the cause of any after-trouble.

When working under a nerve block or any other form of anæsthesia, the same caution should be exercised to avoid undue injury to either hard or soft tissues as would be used were the tissues not anæsthetized. This is particularly true in the matter of the generation of heat, by too rapid drilling or use of a dry stone or sand paper disk. The inquiry caused under these conditions is as productive of postoperative pain as any part of the operation.

It is all too common a practice for dentists to ignore complaints which are not extremely insistent. The patient is put off with the assurance that "it will be all right when you become accustomed to it." Patients are only too willing to forego further grinding to adjust occlusion, further filing of an overhanging margin, deeper scaling of a periodontoclasia pocket or any other work which they think they can possibly get along without. Inlays, crowns and bridges are apt to be left in plus occlusion, because of depending on the patient's word that the occlusion is not too high. We must not depend on the patient's word but must test most carefully with articulating paper until the occlusion is unquestionably correct.

Careful removal of overhanging margins, cement and roughness of any nature will minimize postoperative pain.

SUMMARY.

1. Pain is valuable as an indication of a pathologic process.
2. Pain, or sensation, is valuable as a diagnostic aid.
3. Pain should seldom, if ever, be inflicted by the dentist.
4. Minimizing pain is most truly and acceptably accomplished by prevention.
5. Accessory discomfort or pain, brought about by the dentist, is wholly inexcusable.
6. Present-day anæsthesia should remove fear of the dentist's chair from patients' minds.
7. Prevention of postoperative discomfort or pain is quite as important as any other phase of minimizing pain.

A CAST SPLINT.—In cases where one or two lower incisors have become very loose and much elongated, it is possible to retain them in comfort for a considerable time by making a long cast splint in two lateral halves, which extends from the firm teeth on one side to the firm teeth on the other side. In such cases there is nearly always space enough between the teeth to place a couple of slender iridio-platinum bolts to draw the two halves of the splint firmly together. These bolt heads should be neatly countersunk in the material of which the splint is made, and after drawing up, the bolts themselves should be cut off and finished smooth. A space for the floss or quill pick should be left between the lower margin of the splint and the gum. This splint is not an ideal thing, but in some cases fills a desperate need that nothing else will reach.



---Of Human Interest

This Department is Conducted by
G. MERRICK SINGLETON, D.D.S.

I invite you to read my page, and hope that you may find here, as I have, something which will cause you for a short time at least, to forget a few of the many perplexities of our daily round.—G.M.S.



A Genius in Friendship



HAVE been travelling in great company of late, for I have had none other than David Grayson as my guide and companion. Not the man in person, of course, but next best—his books, whose call I always hear and obey at this season of the year. I have listened to his cheery laugh as he tells some trifling anecdote, seen through his eyes a sudden gleam of glory over the hills, caught a breath of the scent from a hidden flower or tree, and shared his abiding conviction of the reality of the spiritual things eternally behind the material things.

You ask wherein lies his appeal?

In his pronouncement of simple spiritual truths, through his "creed" of humanity and brotherhood, and an elusive, inexplicable quality which we call charm. We find his books helpful to us, are made happier by them, and through their dominant note of optimism, and his direct and simple phraseology, he teaches us how to live better lives. The Graysonian philosophy of life is not "one of surrender and escape," but one of adaption and fulfilment. It is a practical philosophy and suggests a change in oneself rather than in conditions.

"Happiness, I have discovered," he has written, "is nearly always a rebound from hard work. It is one of the follies of men to imagine that they can enjoy mere thought, or emotion, or sentiment. As well try to eat beauty. For happiness must be tricked. She loves to see men at work. She loves sweat, weariness, self-sacrifice. She will be found not in palaces, but lurking in cornfields and factories and hovering over littered desks. She crowns the unconscious head of the busy child. If you look up, suddenly from hard work, you will see her, but, if you look too long, she fades sorrowfully away."

The distinguishing quality of David Grayson, is, as has been said, "his capacity for friendship which equals that of

the saints in their capacity for holiness." It is also the explanation of the success of his books as represented in figures of sales.

"How little, after all, learning counts either in books or in men. I have often been awed by the amount of information I have discovered in a man or a book; I have been awed and depressed. How wonderful, I have thought, that one brain should hold so much, should be so infallible in a world of fallibility. But I have observed how soon and completely such a fount of information dissipates itself. Having only things to give it comes finally to the end of its things; it is empty. . . .

" 'What have you?' We are ever asking of those we meet. 'Information, learning, money?'

"We take it cruelly and pass onward, for such is the law of material possessions.

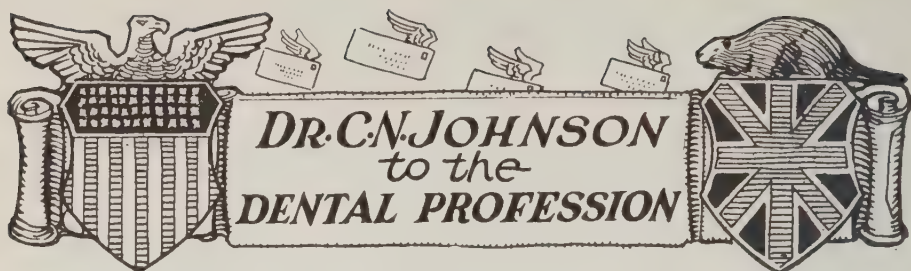
" 'What have you?' we ask. 'Charm, personality, character, the great gift of unexpectedness?'

"How we draw you to us. We take you in. Poor or ignorant though you may be, we link arms and loiter; we love you not for what you have or give us, but for what you are."

If this is your language too, draw Grayson to you. You will love him for what he is. How faithful a picture he may draw of his farm. I do not know; how faithful as portraits of his neighbours the Scotch preacher and Horace and Charles Baxter and the rest are, I neither know nor care. To me the farm is a familiar place and the people who come and go about it are living human creatures for whom I have a neighborly kindness.

"What I am seeking is something as simple and as quiet as the trees on the hills—just to look out around me at the pleasant countryside, to enjoy a little of this passing show, to meet (and to help a little if I may) a few human beings, and thus to get more nearly into the sweet kernel of human life. My friend, you may or may not think this a worthy object; if you do not, stop here, go no further with me; but if you do, why, we'll exchange great words on the road; we'll see and hear the finest things in this world. We'll enjoy the sun."

And so, at the end of a fagging day, I like nothing better than to have David Grayson by me. I am happily content to travel with him and drink in his flow of whimsical philosophy. I am content to enjoy him, and because of such deep enjoyment—am willing and anxious to share him with you.



An Aristocratic Porter

IT has been my fortune of late (good or bad, dependent on the point of view) to travel a great deal in a sleeping-car, and therefore I have been thrown much with the porters, and have had occasion to observe their ways. To me they are always intensely interesting, and I have before remarked in print—when or where I cannot recall—that if dentists as a class displayed the same technique in the performance of their operations that a porter does in making up a berth the dental work of the world would move along more smoothly and expeditiously than it does to-day, and better results would be accomplished. I recommend a careful study of a porter as he gets your bed ready for the night. There is no false motion, no hesitation as to what to do next, no brief moment when there is the slightest confusion in the orderly technical procedures of the operation.

He gives a push here, a pull there, and a twist of the wrist, and the thing is done, and done neatly. Even if you have not been sleepy till that moment, the bed is made so inviting that you want to climb into it between the white sheets.

And the real porter is the one who shows the greatest solicitation for the comfort of his passengers. I have usually been fortunate with porters; ordinarily they have been most considerate of my welfare, and have taken the best care of me. The last one whose guest I was came to me, as we neared the end of the trip, and gave me his name and the name of the Superintendent of his division—written, by the way, in good penmanship.

“If you evah’ want to take a party with you over the line just tell the Superintendent to let me go along with you and take care of you.” And if anything would contribute to the enjoyment of the trip it would be to let that Porter look after my comfort. (Incidentally I wrote the Superintendent commending the porter for his service to his passengers, and received word in return that the porter’s name had been placed on the honour roll in the next issue of their official publication.)

Once in a long while I have drawn what, in the vernacular, is called a "lemon," and curiously enough I drew two on one trip. It was a two-night journey, with a change of sleeper, and the fates were evidently against me. The first porter was sourer than vinegar, and he apparently would not have cared if every passenger had been dumped out in the ditch and buried in the mud, beyond rescue. The only time he gave evidence of being human was at the end of the journey when he made a pretence of brushing the passengers—for his stipend. The minute he pocketed the money he lost all interest in humanity. It was so apparent that it really became amusing, and yet there was not a passenger who had the moral courage to refuse to tip him—and I was as bad as the rest.

In passing, I have always noticed that no matter how different and even surly a porter may be during most of the journey he invariably becomes mellow and human near the end, when his pocket feels the urge—in short he is just like the rest of us. I have sometimes speculated on the possibility, or otherwise, of a certain porter being able to raise a smile—only to find that the sourest of them can show their teeth at the prospect of a tip; which after all is just a manifestation of human nature.

But my aristocratic porter came the second night out. The sleeper was not crowded, and he made himself comfortable in a vacant berth by sliding the seats out so he could stretch himself across them. He dozed contentedly all night and paid no attention whatever to the passengers. He failed to shine a shoe in the car. He was awakened shortly after 6 o'clock in the morning by a train man passing through and as soon as the man was gone he lapsed again into slumber. He had the shades drawn down in his section so the light would not disturb him. I watched him with admiration—I do not sleep well early in the morning. I became convinced that he was never going to waken, but after an eternal lapse of time he stretched in a long lingering yawn and shoved the seats back in place and jerked up the blinds. He never really came to life till it was time to collect—then suddenly he emerged a human being.

It seemed the proper thing to give this chap a lesson, and tell him that in view of the fact that he had done nothing for the passengers he should receive no tip. I found myself arguing over the matter, the upshot of which was this:—how did

I know that the boy had any sleep the night before? How did I know that he was not robbed of his rest by a sick wife or sick child? Why should I pass judgment on his behaviour without knowing all the circumstances? I shouldn't—I didn't. I gave him his tip, and felt better about it. And I hope he did. Anyhow I don't like the job of reforming people, and of course I am charged with demoralizing them. All right—I'll go on demoralizing and some one else may do the reforming.

I like porters as a class, and if this one was not up to class, maybe it was not his fault.

C. H. Johnson,

Lieut.-Col. W. G. Thompson Appointed
Chairman of C.A.D.C. Committee



HE appointment of a committee of the Canadian Dental Association to consider and report upon the question of a proper establishment for the Canadian Army Dental Corps is in keeping with the policy of the re-organized C.D.A. to have Dentistry take its rightful place in connection with Canadian national activities. Doctor Thompson has accepted the important post of Chairman of the Committee. All Canadian dentists who have any knowledge of Walter Thompson or of the work to be accomplished will be glad to learn that he is willing to undertake the task. Colonel Thompson's years of service as an Army Dentist, both before and during the war, and his experiences as Director of Dental Services M.D. No. 2, fit him pre-eminently to serve the profession acceptably in Militia matters as these may affect Dentistry.

Service Clubs Doing Good Work



T a recent Kiwanis gathering a member of the Timmins Club remarked upon their having provided one young man with two wooden legs. A member of the New Liskeard Club immediately replied, "That's nothing, we recently gave a lady a cedar chest."



British Columbia—EMORY JONES, D.D.S., New Westminster, B.C.

Alberta—JOHN W. CLAY, D.D.S., 914 Herald Bldg, Calgary.

Saskatchewan — C. W. PARKER, D.D.S., Imperial Bank Bldg., Regina.

Manitoba—W. W. WRIGHT, D.D.S., 767 Warsaw Ave., Winnipeg.

Maritime Provinces—J. STANLEY BAGNALL, D.D.S., 34 Larch Street, Halifax, N.S.

Ontario—LIEUT.-COL. W. G. THOMPSON, 46 Sun Life Bldg., Hamilton.

STANLEY G. McCAUGHEY, D.D.S., 384 McLaren St., Ottawa.

Quebec—M. L. DONIGAN, D.D.S., 1396 St. Catherine St. W.

PAUL GEOFFRION, D.D.S., 308 Sherbrooke Street, Montreal.

Provincial Editors will appreciate receiving from all local societies copies of papers, society proceedings or personal notes, for publication.



BRITISH COLUMBIA.

ANNUAL MEETING OF THE BRITISH COLUMBIA DENTAL ASSOCIATION.

THE annual meeting of the British Columbia Dental Association was held in the Hotel Vancouver on July 2, 3, 4, 1928, in Vancouver, B.C. President Fred. Coghlan ably presided, while Secretary E. Fraser Allen attended to the numerous secretarial duties.

The programme was a very well balanced one, as may be seen by the following names:

Drs. Herman A. Maves and Frederick Myers, of Minneapolis, read papers, followed by very instructive clinics on "A standardized technique for controlling the variables in the casting process." They proved to be masters of technique and demonstrated how to prevent the misfits and faults in M.O.D. and three-quarter crown inlays.

In "Children's Dentistry," Dr. John E. Gurley, of San Francisco, gave splendid instruction both by paper and clinic. As President of the Pacific Coast Dental Congress, he explained in detail the plans for the big convention to be held in San Francisco in July, 1929.

Dr. C. J. Stansbery, of Seattle, showed a new method of

"Taking of Check Bites of the actual positions which the jaws occupy in their masticating function."

Dr. W. I. Ferrier, of Seattle, gave a clinic on "Standardization of Casting Technique," using the new Hollenback casting machine.

Other interesting clinics were given by:—

Dr. J. E. Argue, Seattle—on Porcelain.

Dr. Roy Donaldson, Seattle—on Periodontia.

Dr. W. J. Gibson, Victoria—on Amalgam.

Drs. T. R. Peden and W. K. Sproule, Vancouver—on Inlays.

The Canadian Dental Association Convention was reported by Dr. Emery Jones. The B.C. meeting approved the new Constitution of the C.D.A., and were pleased to join with the other Provinces in making the Canadian body as strong as possible.

At the Cabaret Dinner and Dance many Royal College graduates were noticed. Of the old timers we would name Jimmy Black, Horace Wood, Joe Bricker, Bill Lea, Milton Jones, Fred. Coghlan, Archie Johnston, Bill Loveridge, Frank Pollock and Emery Jones; while in the younger set, Fraser Allen, Sammy Sampson, Harold Cline, Norman Guy and Ralph Hall were in evidence.

General Impressions



GENERAL impressionse are never to be trusted. Unfortunately when they are of long standing they become fixed rules of life and assume a prescriptive right not to be questioned. Consequently those who are not accustomed to original inquiry entertain a hatred and a horror of statistics. They cannot endure the idea of submitting their sacred impressions to cold-blooded verification. but it is the triumph of scientific men to rise superior to such superstitions, to desire tests by which the value of benefits may be ascertained, and to feel sufficiently masters of themselves to discard contemptuously whatever may be found untrue."—*Francis Galton.*



This Department is Edited by
C. A. KENNEDY, D.D.S.,
86 Bloor St. West, Toronto.



A CEMENT FOR FASTENING HANDLES AND FERRULES.—Equal parts of rosin and brickdust make a good cement for fastening handles and ferrules.

IF YOU WANT FULL DENTURES TO WORK WELL.—Scribe the prosthetic curve for anatomical set-up with precision, using an instrument like the Wadsworth or Monson. Do not leave it to guesswork or haphazard methods. The plane of occlusion must slope lingually the same as antero-posterity. A curve will not save the case unless that curve be made scientifically.

TO REMOVE BLOOD STAINS.—Soak in warm water to which has been added tartaric acid. No soap is necessary.

IMPRESSIONS.—The first notable thing about taking an impression is that it is personal work. No one but the operator can do it. Indeed, no one can help the operator, so far as the actual work goes. It is like the task of a painter, sculptor or surgeon. The individual, personally, must handle the brush or chisel, mould the clay, or wield the knife. No part of the work can be delegated. Even the materials must be selected by the operator, and by no one else. The technique of taking an impression expresses the individuality of the operator, the work reflects his ability. The fundamental principles involved in taking an impression are the very foundation upon which a technique is built.—J. WERNER, D.D.S., in *Pacific Dental Gazette*.

TO PREVENT TEETH SLIPPING FROM FORCEPS.—In extracting, where there is danger of the tooth slipping through the forceps, instead of tying cotton rolls or other similar devices, heat a little beeswax and fill the beaks of the forceps from the joint up. When applying the forceps to the tooth, press the tooth right into the beeswax. It is sticky enough so that it will not fall out of the forceps, and also makes it impossible for the tooth to slip through.—*Dental Digest*.

BLEACHING PINK RUBBER.—To improve the colour of gum pink, place the denture in a glass container and cover over with methylated spirits and allow the direct rays of the sun to shine on the plate for an hour or so. This will bleach the pink rubber to a much better shade.—C. A. K.

TO REMOVE ROUGE.—After polishing crowns, bridges, plates, cet., I found it difficult to remove traces of rouge, and would spend much precious time fussing with a brush and soap and water trying to do so. Try a solution of bicarbonate of soda and hot water, with a brush. It quickly and thoroughly removes all traces of rouge. Denatured alcohol will also work beautifully, but is more expensive.—*Dental Digest*.

ALLOY FILLINGS, POLISHING.—After shaping and surfacing the filling by grinding, scraping and dishing, use pumice-soap with the engine brush to polish. Pumice-soaps in various grits is for sale by dealers in toilet articles; it has no equal as a scouring agent for removing obstinate stains on the natural teeth. The coarser varieties are excellent for cleansing the hands from the dirt and grime of laboratory operations.—*Mr. H. J. Morris*.

FLUX FOR FINE SOLDERING.—Where extremely fine soldering is to be done on small pieces of work, use creamy borax. This is obtained by rubbing a wet lump of borax on slate or ground glass. Use small pieces of solder from the creamy mix. When the joint to be soldered is thoroughly cleansed and properly heated, take a small brush and moisten the parts to be soldered with the creamy borax. Jewellers use this method for fine work. The general practice of using a long strip of solder and a salt shaker to sprinkle on dry borax is much too crude for fine work. No wonder so many facings are cracked.

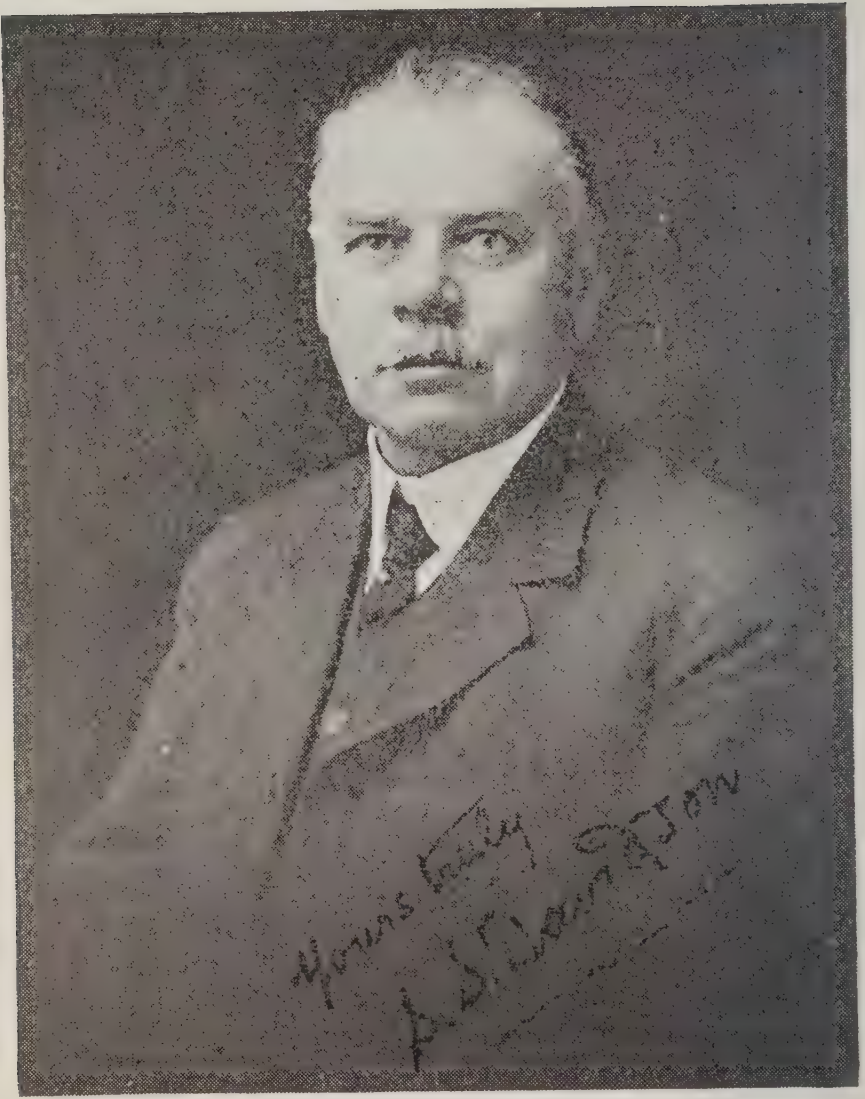
Gossip

“**I**DLE gossip, rolled on the tongue of scandal, causes more heartache, misery, woe, jealousy and unrest than any other one reason in life.

“An idle remark, flung off in a joking way, may be passed along by some serious soul—and soon the pack is in full cry, and a fair name is torn to tatters.”

I Would Be True

*I would be true,
For there are those who trust me;
I would be pure,
For there are those who care;
I would be strong,
For there is much to suffer;
I would be brave,
For there is much to dare;
I would be friend of all—the foe, the friendless;
I would be giving, and forget the gift;
I would be humble,
For I know my weakness;
I would look up, and laugh, and love, and lift.*



SAMUEL SPROULE DAVIDSON, D.D.S.,
Ottawa, Ontario.

ORAL HEALTH

*A JOURNAL THAT STANDS FOR THE "OUNCE OF
PREVENTION" AS WELL AS THE "POUND OF CURE"*



Vol. 18 TORONTO, SEPTEMBER, 1928 No. 9

Pioneers in Canadian Dentistry

SAMUEL SPROULE DAVIDSON, OF OTTAWA, IN PRACTICE
FORTY-SIX YEARS.

DOCTOR SAMUEL SPROULE DAVIDSON, pioneer, is one of the best known and most popular members of our profession in Ontario, one whom we delight to honour. He was born near Ottawa on May 21st, 1860 and received his education in the Ottawa Public Schools and the Collegiate Institute, and graduated from the Royal College of Dental Surgeons in 1882. Later, in 1902, he took his degree of Doctor of Dental Surgery at Trinity University, winning a Special Honour Certificate.

Ambitious and ever active in the interests of his profession, he soon came to the front as an outstanding man, becoming president of the Ottawa Dental Society, and later, president of the Eastern Ontario Dental Association.

In 1920, he was elected representative of District No. 1 on the Board of Directors of the Royal College of Dental Surgeons and is now vice-president of that body.

The early days were those of the indentured student and thus it was that in 1878 he was articled with the late Dr. Chas. A. Martin, an older pioneer and the first representative of District No. 1 when the college was organized.

In 1884, he entered into partnership with the late Dr. J. C. Bower and later with Dr. N. W. Cleary and Dr. L. E. Stanley, both deceased. Dr. E. W. Oliver is his present professional associate.

Despite the pressure of professional duties, Doctor Davidson is a man of many interests and believes that life has enjoyments as well as duties.

He is a member of the Rivermead Golf Club, the Jovial Fish and Game Club, the Deep Lake Club and the Trinity Grad's Club.

It is a high tribute to his sterling character to say that golf has not destroyed his optimism nor has fishing eliminated his respect for the truth. Alas! how many have fallen by the wayside in these crucial tests!

Incidentally, Doctor Davidson has found time to do a bit of travelling. He has spent several winters in California and made the trip through the Panama Canal. He visited England, France and the battlefields, the Riviera and Italy, and is the sort of man who has a seeing eye and an understanding mind, so that travel has deepened his thought and broadened his outlook.

When the writer discussed the subject-matter of this sketch with Doctor Davidson, he seemed to think that the readers of ORAL HEALTH would be interested in his professional career only.

From this opinion the writer begged to differ, claiming that behind the professional stands the man and that it is the man who counts. Doctor Davidson is a very modest man who does not seek the lime-light and it must be said that honours sought him because of his sterling character and efficiency.

He is a companionable man, affable and accessible. That is why he is so popular with the younger members of the profession. He does not high-hat anyone, but is always ready to listen, to advise and to help.

While he has very definite opinions of his own, he is very charitable toward the opinions of others and can appreciate another man's point of view. He knows that one cannot be right all of the time and is amenable to reason.

He has a keen sense of humour, the saving grace of a philosopher, and as a raconteur is inimitable. Many a time has a convention been enlivened and made doubly enjoyable by his humorous stories and ready repartee.

The casual reader, from this eulogy, may think that the writer, who has known Doctor Davidson for forty years, has placed him on a pedestal, unique and unapproachable. Not at all. He would be the first to deny such an implication. There are many fine fellows in our profession, fellows just like him who made the profession what it is to-day. The thing is that he is one of them and one of the best.

The editor of ORAL HEALTH had a happy thought in planning this series. It is well to throw a few bouquets while the recipient is alive and able to enjoy the perfume.

MARK G. McELHINNEY.

A PERSONAL MESSAGE FROM DR. S. S. DAVIDSON.



WISH to thank my professional confreres for their friendly courtesy, for the confidence which they have placed in me and for the honours which they have conferred upon me, more than I have deserved.

I have tried to do my best, and if at any time I fell short of expectations, it was not because of lack of effort, but because of natural limitations.

Dentistry is a profession of great usefulness, worthy of the best efforts of the highest ability.

The possibilities of its future are without limit in any one of its departments, so that no man, whatever his attainments, need feel cramped therein.

When I hear a dentist disparage his profession, I pity him, for I know that he has neither caught its spirit nor seen the vision of its future.

So, I say, carry on and make that great future a reality.

S. S. DAVIDSON.

A Confucian Belief and the Teeth



DOCTOR P. G. CLARKSON has forwarded the following, which he read in Robert K. Douglas' book on Confucianism:—"According to the Confucian system, a woman's life is divided into periods of seven months or years, and a man's into periods of eight months or years. Thus an infant girl cuts her teeth at seven months, and changes them at seven years, at fourteen she arrives at puberty, and at seventy she should be prepared to die. A boy, on the other hand, cuts his teeth at eight months, changes them at eight years, arrives at puberty at sixteen, and has exhausted life by the age of eighty."

A Standardized Amalgam Technique*

WM. J. GIBSON, D.D.S., VICTORIA, B.C.



THE purpose of this paper is to bring before the members of our profession a brief resume of a Standardized Amalgam Technique, that will have for its object the elevation of amalgam restorations; the need for a simple and comprehensive treatment of amalgam, and a real appreciation of the importance of amalgam restorations, as a factor in conserving the teeth and health of our patients.

The general practitioner of to-day realizes the important place amalgam holds in dentistry and as in all our operations we must have some incentive, we must have a mental picture of the finished ideal which, when once obtained, we can strive to duplicate.

Clinical experience of the past has taught us the value of amalgam. It has wonderful tooth saving qualities, even although it has been used in a careless, indifferent manner. One thought I would like to expel from all is that amalgam should never be regarded as a cheap substitute for gold foil or the gold inlay, as it has been proven that teeth can be saved with amalgam when it has become practically an impossibility to save them with other materials.

To-day scientific dentistry is classified. In this classification about 75% of our work brings about the restoration of the anatomic forms of teeth which have been destroyed by an ingress of caries. The importance of any material bears a direct relation to the extent of its use. Judged from this standpoint the importance of amalgam is at once evident, for a comparison of the number of amalgam fillings inserted with all fillings of other materials when taken from records of actual practice has always shown at least 75% of the total to be amalgam.

The general practitioner must come in contact with and perform all branches of dentistry which he is called upon to do. Now let us all class ourselves as average dentists, and the point I want to bring out is that it is far easier for the average dentist of to-day to standardize his amalgam tech-

* Paper and clinic given before the British Columbia Dental Society, 1928.

nique, and produce more lasting results, than it is for him to standardize his inlay technique. To standardize gold inlay technique one must be thorough in every detail, as in any other technique, but there is more chance for failure with an inlay technique than there is in a standardized amalgam technique. Inlay technique requires a scientific apparatus, drying ovens, etc. The steps involved in inlay technique more than double the steps involved in amalgam technique, all of which must be carried out with a skill and thoroughness in regard to detail.

It is not the purpose of this paper to condemn the gold inlay, as we all know that the gold inlay will always hold a high place in carious restorations, but the inlay, to be perfect, requires a greater degree of skill than does the amalgam.

So let me impress this point again that it is easier for us as average dentists to standardize an amalgam technique and produce more ideal and lasting restorations than it is for us to standardize our inlay technique.

Now the question may come—Yes, but you cannot do that for \$3.00 and get by. We have the metals against us. Gold is easier to sell for larger fees, gold always signifying riches. Now from this point it is up to us. The majority of people are getting educated to higher class dentistry. Some of them are demanding it. We have to sell dentistry, that is what it is coming to. What we want to do is to strive to sell ideal dentistry. To do this we must educate our patients. To aid us in this aim nothing is more convincing than some ideal models from which what you aim to do can be easily demonstrated. For example, the models I have made up can be easily duplicated by you, showing the old (gobs of amalgam, as they are called) and the finely carved restorations with their polished surfaces. Ninety-nine patients out of a hundred would prefer the highly finished article and a fee ranging from \$3.00 to \$10.00 can be asked according to the size of the restoration. If many cavities present in the oral examination, and the patient is in strained circumstances, sell ideal dentistry by picking out a large cavity in a lower molar or bicuspid one that they can plainly see themselves, place in an ideal amalgam restoration nicely finished, get your fee and explain to them it will be far better to have their dentistry done in this manner and arrest the remaining cavities with a temporary cement and have an ideal restoration put in the

mouth or whatever the case may be. This way is both helping the patient out, raising the standard of your work and raising a just amalgam fee to reward you for your service.

Now to perfect your amalgam technique there are six fundamental essentials involved that must be kept in mind.

- 1—Proper Cavity Preparation.
- 2—Accurately tested Alloys of the greatest strength and stability.
- 3—Correct Amalgamation.
- 4—Correct Instrumentation and Condensation.
- 5—Correct contour and finish of restoration.
- 6—Profitable Fees.

CAVITY PREPARATION.

By cavity preparation we mean a mechanical treatment of the injuries of the teeth produced by caries as will best fit the remaining part of the tooth to receive a filling, restoring the original form, give it strength and prevent recurrence of decay in the same surface. No filling material is given a just opportunity to prove its worth without proper cavity preparation.

Here we are indebted to Dr. G. V. Black for his tireless efforts in working out a standard and scientific cavity preparation which has been universally adopted.

Typical classes of cavities for amalgam restorations are classes known as class one, two and five. Class one being pits and fissure cavities in the occlusal surfaces of the bicuspid and molars in the occlusal, two thirds of the buccal surfaces of the molars in the lingual surfaces of the upper incisors and occasionally in the lingual surfaces of the molars.

Class two cavities are smooth surface cavities in the proximal surfaces of the bicuspid and molars which in their preparation involve a step formation.

Class five are gingival third cavities.

In the preparation of a cavity for the insertion of an amalgam restoration the same exacting care should be taken as the operator would were he going to insert a gold restoration (Remember a good foundation from which to build the finished ideal is essential).

Now in dealing with the mechanical procedure in the preparation of the cavities or (Instrumentation) the operator should follow our father of scientific dentistry, namely Dr. G.

V. Black, as there are certain fundamental principles that are general in the excavation of carious cavities in the teeth, the observance of which will simplify and facilitate their operations.

First: obtain the required outline form, broad outline.

Second: obtain the required resistance form, Flat bases.

Third: obtain the required retention form, angle slightly more than for gold.

Fourth: obtain the required convenience form, ease of access of instruments.

Fifth: removal of carious denture.

Sixth: finish of enamel and bevel the entire depth instead of quarter.

Seventh: toilet the cavity.

Now let me impress this point again that the cavity preparation for amalgam should be the same as that for gold, with the exception of the cavo surface bevel. The ideal cavity is a box form with a flat base. This of course becomes complicated in many forms of cavities, but the principle should be followed in any cavity when stress will be applied to the completed fillings.

ACCURATELY TESTED ALLOYS OF GREATEST STRENGTH AND STABILITY.

The selection of a good reliable alloy is essential. Practical experience has led to the conclusion that a dental amalgam alloy must satisfy the following requirements:

It must amalgamate in such a manner that it will be capable of accurate manipulation by dentists who are familiar with restoration technique.

It must possess inherent structural strength and impart this quality to the resulting amalgam. Its amalgam must be sufficiently strong to withstand the continued force of mastication. It must not flow from the cavity under this stress. Its margins must endure this force without fracture.

It must be chemically and electro chemically resistant to deterioration by tarnishing corrosion.

It must be the type known as balanced alloy, that is, when properly amalgamated and condensed in the cavity the amalgam must remain tight to the cavity walls. It must not contract and must have a minimum and regulated amount of expansion.

It must require the minimum amount of mercury.

Its colour should be pleasing.

It must not contain materials that will injure the tissues or discolour them.

It is not easy to incorporate all of these qualities in one alloy, but it is possible and we should not be satisfied with one alloy which fails to meet all of these requirements. Alloys are of two grades, High percentage silver and Low percentage silver.

High percentage silver alloys contain 65 to 67 per cent. of silver. While low percentage alloys contain 43 to 48 per cent. of silver. The low percentage alloys are very rarely used for restorations, all our commercial alloys for daily use are of the high percentage type. The high percentage alloy contains 67% silver, 27% tin, 5% copper, 1% zinc.

The function of the metals in the alloy are:

Silver—increases the volume, lessens the flow subject to sulphide reaction, not easily manipulated, hastens the setting.

Tin—retards the setting, decreases edge strength, increases the flow and produces an easy workable mass. It imparts to the alloy its property of solubility, making possible the more ready amalgamation of the copper and silver.

Copper—imparts strength, decreases flow in the amalgam and possesses a desirable coefficient with respect to change of volume upon amalgamation.

Zinc—color, adds a little toughness.

Gold—makes amalgam springy and difficult to pack. It has low tensile strength and is liable to flow and has a high electric potential. Gold is not used in the commercial alloys.

CORRECT AMALGAMATION.

Dental amalgams are partial solutions of a metal or alloy in mercury. We, as dentists, by triturating the alloy and mercury in a mortar are the manufacturers of that amalgam, so it behooves us to use all our skill to bring about as near as it is humanly possible a perfect end result.

There is an unwillingness on the part of some of us to spend sufficient time in making the mix, with the result that we have a spongy mass of amalgam that when condensed is sure to produce voids and a weak filling. The best alloys make a rather quick setting amalgam, but it is possible to regulate

their setting qualities so that any operator can manipulate them successfully.

The purity of the mercury used is a great factor in the success of an amalgam using a chemically pure mercury, or mercury that is put up by the manufacturers of that particular type of alloy. Also the proportion of mercury and alloy is very important. Again I leave this to the manufacturers who have exhausted endless hours of research and are able to tell us correctly the proportion of mercury to a given amount of alloy. The Caulk Alloy and Mercury Gage is a great asset to the dentist for dropping the correct proportions of Alloy and Mercury in the mortar for amalgamation. An excess of mercury will produce a weak amalgam while with insufficient mercury the resulting amalgam will be full of pits and voids.

The well balanced alloys have proved most successful when triturated in a mortar and pestle. At this stage the sand glass should be used and the alloy and mercury should be triturated from two to three minutes; an exception to this is the engine mixer which, when used, the mix may be made in one minute.

To amalgamate the alloy begin with a light circular motion of the pestle and as soon as the alloy has taken up the free mercury heavier pressure is exerted on the pestle and this should be continued until all the granules of the alloy have been coated and free mercury is not apparent in the mortar. Then the amalgam can be removed from the mortar and rolled in the palm of the hand, this insures a better solution by rapidly changing the position of all the alloy granules, and also expresses some of the excess mercury. Additional mercury may now be expressed through a muslin cloth or chamois, as desired for the particular operation in hand.

INSTRUMENTATION AND CONDENSATION.

Having a perfect mix of amalgam we are now ready to insert it in the cavity.

To secure the greatest strength in the final product we must further express the mercury while condensing and bring the undissolved portions of the alloy granules as closely together as possible.

In all cavities, where there are not four walls surrounding the cavity, a suitable matrix must be adapted. The Ivory Matrixis are very suitable or, in a case of a large M.O.D.

restoration, a full fitted copper band, nicely festooned, is very desirable. Also a dry field of operation is necessary.

In commencing to condense the amalgam start with a piece that is not so dry as the remainder of the mix, and use pluggers that fit the cavity nicely and adapt with a slight tapping motion so that the amalgam is distributed to all angles of the cavity and, as additional amalgam is condensed, the mercury is expressed upwards to the top of the cavity, finishing with an excess of amalgam which insures covering of all the margins and insert heavy pressure which will compress the amalgam well against the cavity walls and insure against leakage of the filling.

CONTOUR AND FINISH OF RESTORATIONS.

Having condensed the amalgam properly in the cavity, carving of the restoration may be begun as soon as the density of the mass permits. If it is a large restoration and a copper band has been used for a matrix it may be left on for a day or so and just the occlusal surface carved, but with any of the Ivory Matrices it is permissible to remove them as soon as the density of the mass permits and commence carving and contouring the filling. A discoid may be used to carve the occlusal surface. The proximal surfaces may be stripped, taking care to maintain the contact point. Finish the carving with articulating paper to insure the bite not being left too high on the restoration. When the bite is comfortable the patient may now be dismissed with another appointment for the final polishing, which is very important; this may be done any time after 48-hours. The occlusal surface may be finished at the final sitting with plug finishing burs and wood points with pumice, while discs and strips may be used for the proximal finishing, following up with brushes or small buffs incorporated with whiting or pumice.

PROFITABLE FEES.

This technique as outlined is not a cheap operation and should not be considered as such by the patient. Our patients must be educated to the high standard of the work which they are having done and one of the easiest ways of doing this is by having suitable models by which you can easily explain to the patient and show them the type of dentistry they are having done. The dentist should stress the importance of restoring

even a pit or fissure cavity to its correct anatomical form, thereby placing the diseased member so it will function efficiently in the oral cavity. Patients are willing to pay an adequate fee for good dentistry when they are made to understand they are getting real value for the amount they pay.

When a careful technique is carried out, throughout the operation, the resulting amalgam restoration should give real service and the service rendered should be the final consideration in determining the amount of the fee.

Interpretation of Dental Radiographs

TABLE CLINIC GIVEN BY FRANK D. PRICE, D.D.S.,
TORONTO, AT THE ONTARIO DENTAL CONVENTION,
1928.

“NTERPRETATION of Dental Radiographs,” using the lantern cannot very well be shown in print because the true values of dental negatives cannot thus be reproduced. At the June Clinic we tried to stress the fact that the health of the patient, age, manner of life, and so forth must be considered in the reading of dental negatives. We showed examples where people in good general health presented large rarefied areas about the roots of non-vital teeth, also where this condition had been carried for many years until serious arthritic lesions set in. Our principal emphasis was some cases that showed little or no rarefied areas about the apices of dead teeth where the patient had very serious secondary lesions and in which the extraction of these apparently innocent teeth had resulted in more or less complete cure. We showed the importance of correct angle of exposure especially for the upper centrals. The X-rays falling opposite the lateral incisor will likely make the anterior palatal canal fall in line with the apex of the central root, appearing like a rarefied area about the apex of the central. Cases were presented showing considerable root absorption followed closely by condensing of the alveolar bone instead of absorption and we noted that these were generally associated with more or less severe deforming arthritis. We presented several cases showing that pulp stones and secondary growths of dentine in root canals and pulp chambers are found

in the mouths of rheumatic patients. Two cases were shown with large bony growths in pulp chambers in which there were no dead teeth or pyorrhea infections, but the patients had rheumatism, thus apparently showing that the tooth lesions were secondary, and caused by irritation from blood toxins. Several cases of impacted third molars were shown in which the apparent position of the unerupted tooth depended on the direction of the X-rays in exposure, and needed usually more than one exposure to determine the correct position of the tooth.

The Convention announcement asked dentists to bring radiographs of cases in practice. Several were presented and shown on the lantern screen.

* * *

All-Compound Technique of Dr. R. O. Schlosser for Full Lower Impressions

TABLE CLINIC GIVEN BY LORNE E. MACLACHLAN,
D.D.S., OTTAWA, AT THE ONTARIO DENTAL
CONVENTION, JUNE, 1928.



HE impressions are taken in the "closed bite" position and "chilled" while both are in that position and supporting each other in the mouth.

The muscle rimming of the upper is done in the mouth by the patient, while the lower is done outside the mouth by a sharp knife to the landmarks—after the simultaneous moulding of the entire mass of the base of the impression compound against the tissues by the action of "Close, suck and swallow" while in the "closed position."

Definite suction can invariably be obtained in lower impressions by the general practitioner by this simple and brief technique.

Master models must be made of Spence's Plaster or artificial stone. Avoid the use of all plaster paris for flasking during vulcanization. However, equal parts of plaster of paris and Spence's plaster make an ideal quick-setting investment.

After the insertion of the denture, "balanced occlusion" in centric, protrusive and lateral relationships is the all important

and essential factor which permanently retains and improves the suction already obtained.

For all compound technique, a small pointed flame is absolutely essential. The Kaplan Impression Lamp and the Hanau Alcohol Torch are most convenient and ideal. However, good results can be obtained with the Mouth Blow Pipe (Tench Pattern).

"Professional Denture Service, Volumes 1 and 2," published by Dentists' Supply Co., are an asset in demonstrating the manipulation of the compound, although the technique steps may differ.

* * *

The Application of Iodine, Silver Nitrate and Formaldehyde

TABLE CLINIC GIVEN BY CHAS. E. PEARSON, D.D.S.,
TORONTO, AT THE ONTARIO DENTAL CONVENTION,
JUNE, 1928.



THE application of these drugs frequently results in irritation to the cheeks, tongue or lips, or an unsightly stain on the lips—so that any technique which safeguards accidents is helpful.

First of all the containers of these drugs should be shallow wide-mouthed bottles, to prevent the drugs touching the shank of the instrument used for application. For convenience, then, small, wide-mouth bottles are arranged in a group of three; the bottles of different colors; and, to saving picking up two or three bottles separately, they are fastened together in a group on a brass plate. For instance, Churchill's Iodine, Brown; crystals of Silver Nitrate, Blue; 15% Silver Nitrate, Green. This, of course, is when using these drugs according to the method of Dr. Frank Adams,—strong Iodine followed by Silver Nitrate. The Iodine is always applied with a small wisp of cotton in a pair of stainless steel tweezers, follow this in the same manner with the Silver Nitrate solution. Or better still, for safety sake, use a silver wire probe about gauge No. 15,—heat the end of the probe until you may pick up a small crystal of Silver Nitrate by having it fuse onto the end of the hot probe. When cooled it is much more easily controlled than the solution on a cotton swab.

The application of Formaldehyde 40% is best accomplished after the method shown by Dr. Stillman of New York. He used a bit of Bamboo about the size of the small end of a fishing rod. This is bevelled like a quill tooth pick and gives you a small point which has a hard polished shell-like surface on the outside of the stick and a porous surface on the inside of your Bamboo. The point of wood is dipped in the strong Formaldehyde, the softer, porous, cane-like surface absorbs sufficient fluid to do the work, the outer shell surface is wiped dry and the point is then rubbed over the hard sensitive dentine and, if the gum is touched, or you have to go under the gum, there is not sufficient fluid to damage the soft tissue.

With these bottles and this technique the danger of accident is reduced to a minimum.

* * *

Rebasing Full Dentures—An Accurate Method Eliminating the Articulator

TABLE CLINIC GIVEN BY W. G. L. SPAULDING, D.D.S.,
TORONTO, AT THE ONTARIO DENTAL CONVENTION,
JUNE, 1928.



PROVISIONS:—Teeth must be in a satisfactory condition. The pins sound. Impression on denture, as for usual method, muscle trimmed, and bite elevation correct.

Procedure:—Using a heavy, close-fitting flask, such as the Tench, pour stone model on impression side of denture, covering full rolled muscle trimmed rim.

When hard, set model, with denture undisturbed, in lower section of flask, as would be done with a new denture, having margin of rim level with, or above, flask point.

Adjust flask ring to a perfect joint.

Pack around and into vault of denture with plasticine, covering all but cusps and edges of the teeth, about one eighth inch protruding.

When lid is on the flask an ordinary case will have a space between plasticine and lid of $\frac{1}{4}$ to $\frac{1}{2}$ inch. Pour in quick plaster, when hard, warm or heat and separate at middle joint, exo plasticine, clean denture and with saw and files, or abra-

sive cone, remove all vulcanite on labial, even also between teeth, and entire palatal vault to within $\frac{1}{4}$ inch of the teeth. This leaves teeth on an arch of the old vulcanite, which, set in cusp impressions of plaster under lid, allows new rubber under usual pressure to be placed without moving the teeth.

Fit to stone model, sheet of wax of medium or light gauge, and mould into muscle trimmed groove.

On the ridge, from heel to heel, place a $\frac{1}{4}$ inch roll of soft wax, or more if a highly built case, and, while soft, close flask with teeth set in their cusp impression. Close with steady pressure. If difficult to close, open, warm and repeat, till flask is perfectly closed. Open and wax up as for usual procedure.

Remove lid and plaster and pour upper $\frac{1}{2}$ flask, having foiled labial and lingual surfaces.

Pack, cover model with celophane, cutting to avoid gross wrinkles and sticking it to model with Corega or such. Foil and celophane prevent considerable loss of sulphur from vulcanite, produces a good surface on vulcanite which, being of maximum strength, may be of thinner gauge.

* * *

Profile Registration as an Aid to Esthetics in Denture Service

SUMMARY OF TABLE TALK GIVEN BY HAROLD H. CUMMER, D.D.S., AT CONVENTION OF THE ONTARIO DENTAL ASSOCIATION, JUNE, 1928.



IN all cases where denture service is anticipated, it is highly desirable to obtain certain records before the loss of the teeth. Two of these in particular, namely, a record of the patient's profile, full size, and a model of the upper and lower anterior teeth in occlusal relationship are valuable, enabling the operator to design the restoration so that when placed in the mouth, harmony with the environment may more readily be accomplished. The writer has found this procedure of particular value and suggests the following course, believing its use would be equally so to others, at the same time disclaiming any originality whatever in the means used.

A piece of soft wire about twelve inches in length and about No. 17 gauge is used. A very desirable material for the

purpose is supplied by electrical supply houses in fuse wire of this size. The wire is formed over the patient's face by the use of the fingers until an accurate outline of the profile is obtained. This is then laid over a card, 7" x 11" printed ready for the desired data, the outline transferred and cut out of the card, the counterpart of the outline only being retained. Patient's name and address and date of record entered and the card perforated ready for filing. This record is used frequently in later sittings in obtaining intermaxillary relationship, the making of the bite blocks, the building out the profile and the setting of the teeth, being placed directly over patient's face, an accurate guide to former conditions.

The second record is obtained by means of a small tray of a form that may be readily inserted under patient's closed lips and carrying softened Kerr's compound to obtain impression of the anterior teeth in occlusion. The tray may be readily cast with block tin. Chill compound well before removing and pour impression with Plaster of Paris. This model registers tooth anatomy and arrangement of natural teeth both as regards teeth to teeth as well as arch to arch relationships. Both records require but little time to obtain and, in addition to the benefits obtained directly to the operator already noted, they assist indirectly, in a way that cannot be overestimated, in giving assurance to the patient that a definite effort is being made to restore not only function but esthetic harmony.

* * *

Copper Amalgam

TABLE CLINIC GIVEN BY J. W. HAGEY, D.D.S., KITCHENER, ONT., AT ONTARIO DENTAL CONVENTION, JUNE, 1928.



T this Clinic the speaker showed how to take advantage of the sterilizing qualities of Copper Amalgam, by lining deep cavities, first with Copper Amalgam, then covering this with cement, to prevent thermal shock, and finally, finishing the restoration with ordinary amalgam, or a gold inlay.

It being next to impossible in some cases to absolutely remove all infected dentine, especially in children, even in comparatively shallow cavities, these, if deep enough, should be

lined with copper amalgam and finished with ordinary amalgam, or gold inlay, usually at a subsequent sitting. If not deep, the restoration should be made wholly of Copper Amalgam.

A four-year-old copper amalgam filling was exhibited which showed **very** little sign of wear, and which hugged the walls of the cavity perfectly.

A series of extracted temporary teeth were shown to prove two things:—

First: Copper Amalgam fillings will preserve deciduous teeth long enough to allow the permanent teeth to develop, no matter whether the tooth was filled as a vital tooth, or as a non-vital tooth.

Second: that root absorption will occur in filled deciduous teeth just as normally as in non-filled teeth, no matter whether the filled deciduous tooth had a vital pulp, or whether the pulp chamber was filled with copper amalgam.

Thus it was shown that Copper Amalgam is an ideal filling for the posterior teeth of children and also a lining material for deep, sensitive cavities, in all posterior teeth.

Attention was also drawn to the fact that in all the teeth exhibited, discolouration was not very marked. The teeth shown were not selected over a long period of time, but were secured, as opportunity offered, only a short time before the Convention.

* * *

Orthodontia and the General Practitioner

CLINIC GIVEN BY S. A. MOORE, D.D.S., LONDON, ONT.,
AT THE ONTARIO DENTAL CONVENTION, JUNE, 1928.



O those of you who are considering the treatment of so-called simple cases of mal-occlusion, I would warn you against the use of laboratory-made appliances which are not made to your specifications.

The general practitioner is a rich field for this appliance which, as a rule, has the diagnosis and instructions for treatment attached, and which generally results in more harm than good. There is no place for the laboratory which would reverse the usual order of things and tell the operator what he should do, what the appliance should be made of and how it should be

done. I do not believe that a dentist in general practice should treat cases of mal-occlusion who is unable to diagnose his case, plan treatment and make the appliance. If he is able to do this, it is unnecessary for him to make his appliance as he can specify what he wants, but, as a rule, he will make his own appliance, or have it made in his office.

While every orthodontist practices preventive orthodontia, he has not the opportunities of the general practitioner, as the vast majority of the patients when they reach his office are past the incipient stage and are confirmed cases of mal-occlusion. The dentist sees these children in early life and should be able to recognize average normal conditions, should they arise or be present. We should be familiar with the normal, and any marked deviation from that condition should be viewed with suspicion. We, also, must remember that normal occlusion may occur in many cases where so-called causes of mal-occlusion have been operative.

The classifications of the causes of mal-occlusion are divided into two main groups as to time and as to manner. The time group is sub-divided into three classes:—

- (1). Inherited causes, which are those transmitted from the parent to the child.
- (2). Congenital causes, which are those which occur in the embryo before birth.
- (3). Acquired causes, which occur after the birth of the child.

The manner group is divided into two classes:—

- (1). Local causes, which are those that are directly upon the oral cavity or its parts.
- (2). Constitutional causes are those that affect the general functions or metabolism of the individual to such an extent as to interfere with the development of the teeth or surrounding structure supporting the teeth.

To the general practitioner the acquired causes are probably the most important, as they are the commonest, and the ones most easily prevented, although we must remember that we have a duty to perform as to the advice on diet, in the case of the expectant mother. Under the heading of acquired causes comes the premature loss of the deciduous teeth, too long retention of deciduous teeth, tardy eruption of the permanent teeth, early loss of the permanent teeth, loss of the mesio-distal diameter of the teeth, improper restorations, mouth breathing, habits, adenoids and tonsils, sore teeth, etc.

Probably one of the commonest causes of mal-occlusion is the premature loss of deciduous teeth, particularly the second deciduous molar. I would like to stress the importance of using a space retainer when a child is unfortunate enough to lose this tooth before the proper time. The same is true of other teeth, but doubly important in the case of this tooth. Space retainers are quite easily made, and I believe if their importance is explained to the parents they will be quite willing to pay a reasonable fee for this service. It will save much trouble later.

If the deciduous teeth are not lost at their normal time, we should try and ascertain the cause. There may be no succeeding tooth. Here the x-ray machine will help us.

The tardy eruption of the second teeth is often a cause of mal-occlusion. This may be caused by pieces of the deciduous teeth impeding their progress, particularly so in the case of the canines. Supernumeraries may be present to stop, or deflect, the eruption second tooth. Here again the x-ray machine should be used.

Children should be watched for abnormal habits. Normal occlusion requires normal function of the tongue and lips. Habits, particularly in the incipient stage, are easily corrected by the usual preventive measures.

As stated above, any deviation from the normal, as to the eruption or loss of teeth, general appearance or size of the arches, should be investigated. The late Dr. Bogue, of New York, advocated the treatment of any child whose palate did not measure at least 28 mm. across the gingival margins at the lingual groove of the second deciduous molars. This would mean approximately 23 mm. in the region of the canines. This is not done by the leading orthodontists at the present time, but it may assist you in checking up on the development of the maxilla. It appears to be the opinion that the treatment of mal-occlusion should not be started before the age of six years, with the exception of cases in which there is a marked mesial or distal, or labial or lingual relation that will become progressively worse. Dr. Jas. D. McCoy, of Los Angeles, states, "In my opinion the number of cases which should be undertaken with the deciduous teeth only present are extremely rare. The only cases I believe we are justified in undertaking treatment, earlier than the sixth year, are those in which the mal-occlusion is very extreme. Such cases are rare in my

practice. I believe the practice of treating deciduous arches where the teeth are in function, but development spaces do not appear where they are supposed to, is absolutely wrong." We should watch our little patients to see that normal development does take place. If it does not, the diet may be at fault. It may be of such a nature that little or no mastication is required. I believe that in the majority of cases the diet of the child of to-day does not require enough mastication. The result is loss of function.

If you have a patient who is an expectant mother, I believe that it is your duty to inquire about her diet and, if it does not meet with your approval, consult with her physician regarding it, as there may be some condition present with which you are not familiar and for which reason she may be unable to eat the foods you desire her to. If there is no reason why she should not eat the diet, as recommended by you, I would have no hesitation in recommending it to her, it being presumed that you know your diet is proper.

One of the most cherished possessions of a dentist is the confidence placed in him by his patients. He has, by his ability and good advice, earned this confidence. These patients bring to you and to me their little children for advice and treatment and they, in turn, place their confidence in us. This is a trust which is sacred and we must exercise all our knowledge and ability to live up to it.

Note.—Slides and model were shown illustrating the above remarks.

* * *

Splint in Periodontal Treatment

TABLE CLINIC GIVEN BY A. J. McDONAGH, L.D.S.,
TORONTO, ONT., AT THE ONTARIO DENTAL CON-
VENTION, JUNE, 1928.



At this Clinic a splint was shown to support teeth which have been made healthy by periodontal treatment, but which have lost over half of the supporting bony structure. The splint is attached by pins inserted into vital teeth and when it is completed shows no gold, and preserves a cleaning space at the gingiva. The method of applying the McDonagh pin was also shown.

Synthetic Porcelain

TABLE CLINIC GIVEN BY R. H. ATKEY, D.D.S., ST. CATHARINES, ONT., AT THE ONTARIO DENTAL CONVENTION, JUNE, 1928.



OMEWHAT similar conditions as found in the mouth were established by the use of natural anterior teeth set up in plaster models, the plaster teeth having been removed to make place for them.

These models were kept moist until needed for the insertion of a filling, when the cavity was dried and filled,—rubber dam being taken for granted.

The method of mixing, the care of instruments and slab, stirring of the "Synthetic" liquid before using, and the other many details of preparing a mix, as explained by the maker, were emphasized. Matching by the Chart of Shades was also referred to,—keeping tooth and shade guide wet, etc.

Fillings were made, including simple labial cavities, labio-proximal cavities, a labio-lingual-occlusal cavity, in a cuspid, prepared so for greater strength at cutting edge with a celluloid crown "form." The occasional use of impression compound, squeezed to shape lingually behind the cavity and trimmed, was also shown as handy to hold the celluloid strip in place, in some cases.

The use of synthetic porcelain to make a quick, inexpensive jacket crown was referred to and partly demonstrated,—partly only, due to a faulty mix, which in practice merely necessitates a second mix—impossible at the Table Clinic, for lack of time.

This type of restoration can be often used where appearance and a vital pulp are necessary, and a baked jacket crown is out of the question on the score of expense.

At this Clinic it was not hoped to show any new thing (though perhaps some of the men attending had not used, hitherto, all the "wrinkles" shown), but rather it was hoped to re-emphasize what is known of a filling material which nine-tenths of the practitioners are bound to use—(or one of the other maker's perhaps, I do not stipulate, though I only know one material),—for anterior restorations, avoiding the "awfulness", of metal restorations, and the greater expense of baked porcelain inlay.

If some few men gained a new view of this filling and its possibilities, or learned any point which will aid them to make more perfect fillings—for perfection of technique is needed here, as in every branch of dentistry—the writer's unpretentious little Table Clinic will have been very well worth while.

* * *

Dollars and Sense in Porcelain Work

TABLE CLINIC GIVEN AT THE MEETING OF THE
ONTARIO DENTAL ASSOCIATION, JUNE 1928.

J. N. STEWART, D.D.S., HAMILTON, ONT.



It is surprising to see how many are afraid of porcelain work, and it is for that reason that I am going to try and present my subject in a little bit different manner, hoping to eliminate some of that fear. Not posing as a "hundred-percenter," I am going to try and give you something of practical value, something you can go home and use with a fair measure of success.

Perfection in any method can only be achieved by close application and practice. Perfection can only be attained by getting a perfect mental picture of what you wish to do before you start. Learn to visualize in advance the finished article—the more perfect the mental picture, the more perfect the finished result. An artist can only bring out or reproduce that which he sees in detail of perfection.

The chief reasons why dentists are not doing more porcelain work are:

1. Inability on the part of the dentist to sell a really high class service at a profit.
2. The lack of knowledge as to where porcelain should be used, both in operative and prosthetic work.
3. The dentist has not taken the time to master a technique that he can handle.

Let me tell you my experience in this work. About twenty years ago I did a lot of porcelain work, but at a ridiculously low fee. The more I did the more I saw that I was losing money by using it. Other materials or classes of work yielded a much greater return. So I found myself substituting other work that was more profitable until porce-

lain work had a very small place in my practice. I was not satisfied, as I had the conviction that porcelain had a very definite place in dentistry. When I had reached that state of mind I came to the conclusion that if porcelain had a place in our practice the patient should be willing, or at least be given an opportunity to obtain that service at a fee that would be profitable. I then went one step further and sold myself on the proposition that since porcelain is the most difficult material we have to use, requiring more skill and giving a far more artistic result, the rate of profit should be much larger than for work requiring less skill. Since adopting those views I have found that the amount of porcelain I am doing has increased each year.

The object and aim of every one of us is to be successful and happy. We can neither be successful nor happy unless we have a sufficient amount of this world's goods to allow us to properly express ourselves in our work and in our play. Both are necessary to a well rounded out life.

In this work there is a factor that you must not lose sight of. Porcelain has the largest "grief" department of any part of dentistry. The patients who demand porcelain work do so for aesthetic reasons, and to satisfy yourself and the patient it is often necessary to make two or three crowns or inlays. I have made as high as six before cementing to place. We should be paid for this time and exacting care. But, I believe the fair thing to do is to spread the cost of maintaining this "grief" department over all your porcelain work.

Before leaving the business side of this clinic I want you to take home one idea: Every time you go to a convention, or take post graduate work, and feel that you really have learned something—feel that you are better able to serve your patients—by all means increase your fees to correspond to your increased ability. The only way your patients have of judging you is by the value you place on yourself. Porcelain is indicated in the following places:

1. Inlays for gingival and proximal cavities.
2. Jacket Crowns.
3. Small Bridges (two teeth).
4. Pontics for Bridge Work.
5. Building out and lengthening the Bicuspids and Molars in denture construction.
6. Staining teeth.

Now let us get at the different phases of the practical work. We cannot expect good results if we do not take care of each step properly. Porcelain work has had its ups and downs, and since it is the most exacting material we have to handle the vast majority of operators have tried to avoid its use. But times have changed. We now have a technique whereby the average man can get reasonably good results, and the better class of patients are demanding that we do a higher class of work than we have done in the past. Porcelain is here to stay, and any man who does not see that his patients get porcelain—where indicated—is going to lose the confidence of those patients. If you do not care to do the work, or are unable to do the work, you should at least know where it is indicated and see that the patient is given an opportunity to receive that service from some one who can.

Times and conditions have changed. The trend of the times seems to be that the average dentist does the operative work and sends the laboratory work out. Many operators do not realize the difficulties the mechanical men are having, owing to our careless habits. I marvel at the mechanics' ability to use some of the impressions and models which are sent to them. One mechanical man wanted to furnish me with a bunch of impressions that he has received to construct work on. He felt that if I could point out some of the common mistakes it would enable the operators to eliminate some of these errors, and the laboratory would be able to do a much better class of work for you.

Visualize in advance the finished preparation and then, with this mental ideal before you, set about to bring out all the details in the preparation that the case requires. Do not form a hard and fast rule of procedure. No two cases are alike. No two operators are alike and so what would be successful in my hands might be a teetotal failure in your hands. Use your own peculiar style, but to a definite end. The finished preparation should conform to well recognized principles. I start the preparation using large stones, always kept wet, much the same way as I would if I were going to prepare for a gold crown. Enamel cleavers, in my hands, are a failure. Cultivate a keen sense of touch, so that you know where you have removed the enamel and where you have not.

It is of the utmost importance that we prepare our teeth and take impressions in such a manner that the lab. man has

a fair chance of success. Before grinding, take an impression of the labial surface of the teeth. This can easily be accomplished by heating a roll of wax and carrying to place on a dry piece of linen cloth that comes on dental rubbers. Prepare your teeth in such a manner that you, or your lab. man, will have something definite to work on. Time will not permit me to take up in detail the various stages of the work, so I will stress some points that seem to be neglected.

Preparing and taking the impression of the gingival shoulder seem to give most trouble. Roughly outline the shoulder with stones, and then bring out more detail—first with cross-cut fissure burs 557 and 558, and then with fine smooth taper fissure burs 600, 601 and 602. Safe-sided end cutting burs are very useful, the finishing touches are then put on or developed with hand files; some are end cutting and others are side cutting.

After getting a perfect preparation try and take an impression that you can use. One that you will not have to guess at. An impression taken in such a manner that you can get a proper amalgam model from. In handling the copper or aluminum tube do not squeeze the one end of the tube flat, as some operators do, or distort it in any way as it will make it difficult for you to run up a proper amalgam model. The tube should be of a size that will fit loosely over the shoulder of the tooth and be trimmed to conform to the shoulder preparation at the gum line. In taking the impression, with compound in the tube, oil your fingers with liquid vaseline, so that your fingers will not stick to the hot compound and distort the impression. It will also enable you to put pressure on the compound forcing it into the fine lines, and not have your fingers stick to the compound. A second impression should be taken in the same manner. The best one is selected to run up in amalgam. The other one is trimmed so that when placed on the prepared tooth it comes slightly below the contact point. Do not allow the tube to remain longer than the adjacent teeth, as the impression tray is likely to rock over this projection and produce an imperfect impression. Place this on the prepared tooth and take the major impressions with material to suit the case.

Running up the amalgam model is important, so I will give you a couple of improvements on what I have given before. First a method of measuring or determining the

amount of alloy to use for a given case, thus avoiding unnecessary waste. Take a small glass bottle, say about an inch and a half long—and the size of a lead pencil. Fill this with fine filings (not shavings), pour into the mortar, add mercury, and mix the same as you would for a filling. Drop into the bottle piece by piece, vibrating to place by tapping it lightly on the table. Squeeze out the excess of mercury with cotton and then note the relative size of amalgam to alloy used. I have found that in order to fill a given tube with amalgam, and have a sufficient excess to complete the operation properly, you should use the tube as a measure and use $2\frac{1}{2}$ or 3 tubes full of alloy. Alloys vary, so test for yourself the alloy you use.

The impression in the copper tube, which you laid aside to run in amalgam, should be wrapped in thin card board, about $1\frac{1}{2}$ inches wide by 3 inches long, and secured with a rubber band wrapped around tube several times. Use this tube to measure the amount of alloy you are to use. The amalgam should be mixed quite soft and vibrated to place by tapping lightly on the table. The last portions of amalgam that are added should be squeezed out to get rid of the excess mercury. When the tube is full, put pressure on the mass with your fingers, while tapping lightly on the table. This will get rid of the most of the excess mercury. Take pieces of thin tin foil and lay across the amalgam while exerting pressure with your finger and tapping gently on the table. Repeat this until you have absorbed all the excess mercury. You will find that this will give a perfect model. Allow to harden 6 or 7 hours before shaping with a Hall wheel and discs. I advocate shaping the amalgam model so that it will lock in a definite position in the plaster model.

Insert this shaped amalgam model into the impression and wax to place on the labial or buccal side. Oil the rest of the amalgam and run the impression in plaster. Separate, remove the amalgam model from the plaster and cut the plaster around the gingival below the contact point, so as to give room to carve your porcelain. Paint the teeth on each side of the amalgam model with collodin, this will keep the plaster from absorbing the moisture from the porcelain when building the crown. On the amalgam model cut a paper pattern and with this cut platinum foil $1/1000$ thickness the same size as the paper pattern. Shape your platinum on the amalgam

model, making the tinnerns joint on the lingual, and burnish to fit.

The success, I repeat, of an operation is largely determined by your ability to visualize in advance the finished work, and each step that it is necessary to take to complete the work. In sizing up the case you should determine whether it is a normal case where you are going to remove the matrix, or whether it is an exceptional case where you are going to leave in the matrix for additional strength, as an anchor tooth for a removable bridge or a swing-on bridge, and in these cases you use a heavier platinum matrix 1/500 and leave it in for strength.

If you send your work to a laboratory, do not depend upon their ability to guess at what should be done, but give them definite instructions. If the platinum is to be removed, the tinnerns joint at the gingival margin or shoulder should be reduced to one thickness of platinum—this can be done with a fine stone—but if the platinum is to remain this thinning of the joint will not be necessary. If the matrix is for a swing-on bridge, use 1/500 platinum and make the tinner joint on the side where you are to swing on the dummy. The tinnerns joint should extend to about 2 mm. above the shoulder and be burnished to fit the amalgam model. The rest of the platinum should extend into the space where the dummy is to go and to within 1 mm. or so of the contact of the adjacent tooth, as illustrated. This adds strength to the case and enables you to carve up the case with greater ease.

The question now arises—what is properly condensed porcelain? Should we be content to have our porcelain as well condensed as a tooth from a manufacturer who is able to work under ideal conditions, and whose product has to stand a rigid inspection? To answer that question I ground sections of manufactured teeth and sections of Jacket Crowns and found that the porcelain in a well-constructed Jacket Crown is as well condensed and free from pores as any manufactured tooth.

The idea of making sections of teeth was brought to my notice by a chap who was showing some beautiful work, and sections of the same, to prove that their method was the correct method. It started me doing some serious thinking, as our methods were different. I decided to make up some crowns by different methods, and section them to see the results. But,

being of a lazy disposition and having a number of crowns that were not good enough to cement to place, I decided to section them first to see the quality of porcelain in these second rate crowns, and to my surprise they were free from pores and equal to that of the manufactured tooth.

The point I want to make is this: I believe that if you become expert in handling any one good method you can produce a properly condensed porcelain. No two people are the same. A method that will suit one may not necessarily suit another. As it is impossible to teach a person how to do porcelain work in a clinic of this length, I am going to try and lay down a few general rules or principles to follow, which should be helpful. Simplicity of methods and steps are essential. The porcelain should be handled in such a manner that each step will produce a definite result. The first application of porcelain should definitely fix and determine the gingival third of the tooth. The labial face of this porcelain should be grooved across in the majority of cases, to break up that uniformity of colour. This is fused to a dull biscuit. Having the underlying colour at the gingival third definitely fixed, apply the porcelain or porcelains to build up the completed tooth, always keeping in mind the completed tooth as regards the anatomy of the tooth and the colours you are to use. Generally speaking the lines and colours of the gingival third run crossways, while in the incisal two thirds they run up and down. Remember these are but general rules, with plenty of exceptions. You can only build into a crown that which you see in the natural, so try and get a perfect mental picture and work towards it.

The porcelain should be build in such a manner that when fired to a dull biscuit bake, the tooth should be slightly larger than you wish. This will allow you to grind and polish to the desired shape and size, and by grinding bring out any irregularities in the anatomy that you wish. Wash the case under running water, with a brush and pumice. Dry with clean towel. Place in furnace and bring to a full glaze.

In closing let me suggest that you make sections of manufactured teeth and then section some of your Jacket Crowns. The porcelain in your Jacket Crowns should be equal to that of the manufactured teeth. If it is not, then your method needs checking up somewhere, or to be changed entirely.

Bi-lateral Fracture of Mandible— Roentgenograms

TABLE CLINIC GIVEN BY J. E. RHIND, D.D.S., TORONTO,
AT THE ONTARIO DENTAL CONVENTION, JUNE,
1928.

FRACTURE of the mandible,—both sides,—in line with roots of third molars. Caused by blow from hockey-stick. No lateral displacement, but patient could not bring teeth into occlusion. Third molars extracted under nitrous oxide anæsthesia.

Treatment: Orthodontia wires were twisted around the bicuspid teeth (upper and lower), at the gingiva, all bicuspids were present and used. The wires on upper and lower were then twisted together, bringing teeth into correct occlusion.

Liquid diet, without the use of glass tube. Frequent rinsing of mouth with a simple antiseptic solution.

Patient advised to carry small pair of scissors to cut wires in the event of nausea or vomiting.

Wires left on for six weeks, by which time union had taken place.

Dental Index Bureau—New Volume

THE 1921-23 Index to Dental Periodical Literature is now off the press. Owing to the vast amount of material appearing in the current periodical literature it has been found necessary to cut the term from five to three years, 1921-23 inclusive. It was originally intended that the volume should cover the years 1921-25. The next volume to be published will cover the years 1924-26, inclusive, of which two-thirds are already set in type. The cost of the volume is \$6.50, to be secured from the Secretary, Dr. A. Hoffman, 381 Linwood Ave., Buffalo.

The man referred to as the "poet" in Longfellow's Tales of a Wayside Inn was Thomas William Parsons (1819-1892), dentist and poet, who practised dentistry in Boston and London, and devoted the last 20 years of his life to literature.

Canadian Dental Association— Presidential Address

JOHN W. CLAY, D.D.S., CALGARY, ALTA.



UE to the generosity of the Ontario Dental Society, the Canadian Dental Association meets once again in the City of Toronto in joint convention with that body. Through the kindness of this Society we have the advantage of attending scientific sessions of great value to us as dentists. Also, we are given the opportunity of laying before a large number of our members the proposals of the provincially appointed delegates, which if accepted will radically change for good or ill the future of the Canadian Dental Association.

It is customary in the address of the President of this Association to discuss in a general way the progress of Dentistry and of the Dental Profession of Canada since the last meeting. On this occasion, however, we meet for one specific object and with one subject before us,—the consideration of the advisability of accepting the radical changes in our constitution proposed by the delegates, appointed by the various Provinces of the Dominion.

For the completion of this one project your present officers were re-elected from the preceding year. Therefore it has seemed to me that my remarks on this occasion should be confined to the one matter which is before us, with which is bound up the whole future of the Canadian Dental Association.

In a few words I should like to review to you the situation in which the Association finds itself at the present time.

Will you consider with me what should be the distinguishing features of the Canadian Dental Association?

I venture to suggest the three following points as the essentials of a successful organization:

First.—It should have a permanent membership of a large number of the Dentists in every Province of the Dominion. For success there must be alive in these members an interest in, and a conviction of, the value of the Association. This is the rock on which the whole super-structure must be built.

Second.—It should have continuity of management by accredited representatives from every province.

Third.—An aggressive programme in accordance with the objects of the Association must be carried on by its executive body for the benefit of Dentistry in Canada. The delegates must be prepared, at some sacrifice to themselves, to give time and thought to the work of the Association, so that it may justify its existence.

These, to my mind, are the three requisites to success. They are the yard-sticks with which to judge the Canadian Dental Association.

Measured by the above standard we must admit that a change is necessary. Either the Canadian Dental Association must move forward to a position where it will command the interest and support of the Dental Profession in Canada, having the loyal constructive efforts of the leaders in Dentistry from all parts of the Dominion to direct its affairs, or it will be of little weight or value.

With some such thoughts in mind delegates from eight provinces met in Toronto one year ago. This year every province in the Dominion has sent delegates to assist in completing plans for reorganizing the Association.

And so it is that at this meeting there is to be presented to you a report from the appointed delegates of what they have done and what they propose as a remedy for this situation. They will very shortly recommend to you the adoption of this report. Should you accept it, the Constitution of the C.D.A., under which it has operated for twenty-six years, will be replaced by the one recommended by the delegates. We will then at once function under the constitution proposed by the delegates.

It is the unanimous recommendation of your executive that this report should be accepted, and that the proposals therein contained should be put into effect at this meeting.

What we need to-day in Dentistry is a *National Consciousness*.

We have pride in our profession. Our Colleges are giving a long course of studies which has science as a basis, and a reasonable amount of cultural education as a necessary antecedent. There are graduating into Dentistry a splendid group of young men. Members of our profession are awakening to their responsibilities as citizens, and are taking useful parts in the activities of the communities in which they live.

Let us begin to think of ourselves as members of the Dental

Profession in Canada. At present we are not doing so. We are thinking in terms of British Columbia, Alberta, Quebec, Ontario or Nova Scotia. That is not big enough.

The Canadian Dental Association asks the Dentists of Canada to think of themselves not in a small and local way, but as members of the dental profession of Canada. Let us have the broad outlook; let us be prepared to assist in this larger way the profession which provides our principal interests, and our means of livelihood. So doing we shall broaden and enrich our own lives and bring to a greater place and to greater usefulness the Dental Profession of Canada.

Minutes of the Meeting of the Canadian Dental Association

J. STANLEY BAGNALL, D.D.S., SECRETARY-TREASURER.



THE meeting was called to order by the First Vice-President, Dr. F. J. Conboy, in the Crystal Ball Room, King Edward Hotel, Toronto, June 5th, at 2 p.m. Moved by Dr. J. Stanley Bagnall that the minutes of the last annual meeting, as published in the Canadian Dental magazines, be approved. Seconded, Dr. Harold Clark. Carried.

Dr. Bagnall reported that one meeting of the Executive Council had been held on June 4th, when the following resolution was passed: "Moved, that this Executive of the Canadian Dental Association approves unanimously of the Constitution and By-Laws prepared by the delegates of the various Provinces and recommends to the Canadian Dental Association the acceptance of the Constitution and By-laws as proposed."

Moved by Dr. Merkeley, that the report of the Executive Committee be received, but not accepted unless report of delegates is accepted. Seconded, Dr. George Kerr Thomson. Carried.

The Chairman stated that the President's address was definite and to the point and that he would be pleased to receive a motion that it be spread on the Minutes of the Association; also, that in discussing the motion it would be quite in order to take up any point in the address. Dr. Webster stated

that the address was to the point, but felt that the statement that "the C.D.A. was going out of existence and would not function as before" was hardly correct, since it was unnecessary for the C.D.A. to go out of existence every time the Constitution was changed. Dr. Clay stated that in order that there might be no misunderstanding he was prepared to change his address at this point.

Moved by Dr. Webster, that the President's Address be inserted in the Minutes. Seconded, by Dr. Willmott. Carried.

Dr. Conboy then handed the meeting over to the President, Dr. John W. Clay.

Dr. Clay stated that the main business before the meeting was the report of the delegates. He stated that Dr. M. H. Garvin, Second Vice-President of the Association, had been asked to present this report, and called on Dr. Garvin.

Dr. Garvin emphasized the many hours of work which Dr. Clay has put on the reorganization of the Association and stated that those who have been in close touch with him can only have a very real sense of gratitude for the work he has done.

The work of preparing plans for the reorganization of the Association culminated in the meeting of the delegates, which opened in the King Edward Hotel at 9 o'clock Saturday morning. The meetings continued all day Saturday and on Monday up to 4.30 p.m., and in addition a number of committee meetings were held by small groups. This will show the amount of hard work that has been put on this question to come to an agreement satisfactory to the representatives of all the Provinces. All points which the delegates could think of were considered very carefully, and while it might doubtless be possible to pick many flaws in it, it should be tried for a year before picking it to pieces too harshly. Then, after the lapse of a year and the opportunity to see how it works out, it may be possible to come to the next meeting with very definite ideas as to how the Constitution and By-laws may be revised, if necessary. There are about eight pages of closely typewritten material which can be read if the meeting wishes it, but possibly the members have sufficient confidence in their delegates to give it a trial without going minutely into the matter at the present time.

Dr. Garvin moved that the Constitution and By-laws as prepared by the delegates from all the provinces be adopted.

Seconded, Dr. Faulkner. Carried. Dr. Webster, in his discussion, pointed out that the resolution did not state that the new Constitution and By-laws might be modified next year.

Dr. Willmott asked if the Committee on Interprovincial and Foreign Relations had anything to do with the licensing. Dr. Garvin replied that there was no thought that this Constitution would have any bearing on the question of license.

Dr. Jones stated that two or three points had been well raised by those discussing the resolution. He felt that there could be no disadvantage in having a resolution that one month's notice of motion for proposed changes in the Constitution, provided that the Delegates were notified, would be sufficient for the first year.

Dr. Garvin stated that the addition of this proviso to his resolution might help us out of the difficulty for the present time, but he was not sure that it would help out in a year's time.

Dr. Clay asked Dr. Garvin if he were willing to make that addition to his motion.

Dr. Garvin moved that we hereby adopt the Constitution and By-Laws of the C.D.A., as presented by the delegates from all the Provinces with the proviso that, during the coming year only, amendments to the Constitution and By-Laws may be submitted to the delegates up to one month previous to the meeting of the Canadian Dental Association. Seconded, Dr. Faulkner. Carried.

Dr. Mowry stated that he wished to thank Dr. Clay and Dr. Bagnall for the laborious task which they had carried on in the past two years, and also Dr. Ritchie and Dr. Faulkner for their work on the details of the Constitution. The principal function of this new small aggressive body, the Board of Delegates, will be primarily and entirely to advance the profession of Dentistry.

Dr. Thomson asked if there were any provision for the election of delegates to foreign bodies as to the Federation Dentaire Internationale, etc. Dr. Clay explained that this matter is taken care of in the item—Committees, and said that in ceasing to function as President he wanted to thank the members for their kind courtesy and attention and that Dr. Mowry struck a very good note when he referred to the work of Drs. Faulkner and Ritchie.

ORAL HEALTH for September, 1928

Dr. Faulkner stated that he thought that a new President should have been appointed before the new Constitution was adopted. Moved that the Association either elect a President or delegate that power to the Board of Delegates.

Dr. Clay explained that a provision had been made in the case of a vacancy and that the Board of Delegates could therefore act, and announced that there would be a meeting of the Board of Delegates on the following afternoon. Dr. Willmott moved that Dr. Clay be asked to take the Chair for the rest of the evening.

Dr. J. F. Morrison stated that he would like to move a hearty vote of thanks to the Ontario Dental Association for their courtesy in inviting the Canadian Dental Association to associate with them in this convention and in the City of Toronto. Seconded by Dr. J. M. Magee. Carried. Dr. Webster stated that he wished to thank Dr. Morrison for his resolution and said that they were delighted to have them. Dr. Clay then stated that he had great pleasure in calling on Drs. Kennedy and Schlosser for their papers. After the presentation of these two papers the meeting adjourned.

FINANCIAL STATEMENT—CANADIAN DENTAL ASSOCIATION.

Receipts.

1927.			
May 5.	Balance	carried forward	\$824.78
June 14.	Proceeds	of C.D.A. and O.D.A. Conventions.....	280.00
" 30.	Interest		4.39
Dec. 31.	Interest		11.77
			<u>\$1,120.94</u>

Expenditures.

1928.			
May	23.	J. S. Bagnall, Honorarium & Travelling expenses.	\$200.00
"	23.	J. S. Bagnall, Postage and telegrams	21.00
"	23.	Miss G. M. Littler, stenographic services	25.00
"	25.	Miss O. Pascoe, stenographic services.....	6.10
"	26.	J. W. Clay, Telegrams, postage and stenographic expenses	40.00
Sept.	16.	West Printing Co., Letter paper, plus 15c ex.	16.79
"	24.	Miss M. Adams, stenographic services, plus 15c ex.	7.15
Dec.	5.	Miss M. Adams, stenographic services, plus 15c ex.	18.65
"	8.	Dr. C. H. Moore, Refund on multigraphing expenses, plus 15c exchange	32.15
May	16.	Thompson and Adams, Premium on Guarantee Bond	5.00
"	20.	Balance in Bank of Nova Scotia	749.10
			<u>\$1,120.94</u>

Approved at meeting of Board of Delegates,
June 6th, 1928.

Dominion Dental Council Examinations

THE following candidates have passed the Dominion Dental Council Examinations, held at various points throughout Canada in June, 1928, in the subjects indicated:

Pathology and Bacteriology.—Brock, J. F., Claman, B., Davis, L., Deagle, M. A., Gruer, U. P., Haselton, L. D., Kingman, G., Kohli, F. A., Lindsay, J. C., Maybe, J. A., McBrien, J. M., McCaffery, H. M., Priest, M. S., Snodgrass, N. G., Somerville, A. A., Stodgell, F. J., Switzer, F. K., Warren, J. M., Zakus, P.

Pathology (Only).—Carmichael, L. D., Dempster, J. C., Layter, S. C., Revell, A. M., Robb, H. M., Smith, Donald.

Bacteriology (Only).—Hall, F. M., Galsky, H. A., Harrington, R., Irwin, A. W., Johnson, B., Portigal, S. L., Skinner, C. L., Whitman, O. B.

Medicine and Surgery.—Anderson, P. G., Brock, J. F., Carman, H. A., Carmichael, L. D., Corlett, H. M., Deagle, M. A., Dempster, J. C., Dewis, G. M., Findlay, C. A., Graves, J. H., Greenberg, N. A., Hare, G. C., Haselton, L. D., Husband, C. D., Layter, G. C., Leith, A., Lindsay, J. C., Millar, J. P., Moffatt, H. F., McBrien, J. M., McCaffery, H. M., Powell, H. B., Robb, H. M., Smith, Donald, Snodgrass, W. G., Stodgell, F. J., Switzer, F. K., Tilson, J. E., Tupper, J. A., Zakus, P.

Operative Dentistry.—Brock, J. F., Carman, H. A., Carmichael, L. D., Corlett, H. M., Deagle, M. A., Dempster, J. X., Dewis, G. M., Findlay, C. A., Gerrie, J. W., Gowda, Faust, Graves, J. H., Greenberg, N. U., Hare, G. C., Haselton, L. D., Husband, C. D., Irwin, A. W., Layter, G. C., Leith, A., Lesik, J. I., Lindsay, J. C., Millar, J. P., Moffatt, H. F., McBrien, J. M., McCaffery, H. M., Powell, H. B., Robb, H. M., Smith, Donald, Snodgrass, W. G., Stodgell, F. J., Switzer, F. K., Tilson, J. E., Tupper, J. A., Zakus, P.

Anaesthetics.—Brock, J. F., Claman, B., Davis, Lloyd, Deagle, M. A., Dewis, G. M., Galsky, H. A., Gerrie, J. W., Gowda, Faust, Gruer, W. P., Hall, F. M., Haselton, L. D., Kingman, G., Lesik, J. I., Lindsay, J. C., Millar, J. P., Morrow, A. B., Maybe, J. A., McCaffery, H. M., Portigal, S. L., Priest, ———, Skinner, Lloyd, Smith, Donald, Snodgrass, W. G., Stodgell, F. J., Switzer, F. K., Tupper, J. A., Warren, J. M., Whitman, O. B., Zakus, P.

Materia Medica and Therapeutics.—Anderson, P. G., Armstrong, H. E., Bernstein, A. H., Brock, J. F., Brown, J. F., Carmichael, L. D., Coupland, J. P., Craig, M. L., Culbert, M. R., Deagle, M. A., Dewar, W. F., Fraser, W. G., Gerrie, J. W., Gowda, Faust, Hall-dorson, O. G., Harris, F. E., Husband, C. D., Lesik, J. I., Levinson, K. I., Maybe, J. A., McCaffery, H. M., Paterson, C. J., Powell, H. B., Smith, Donald, Stodgell, F. J., Switzer, F. K., Warren, J. M., Zakus, P.

Prosthetic Dentistry.—Brock, J. F., Carman, H. A., Carmichael, L. D., Corlett, H. M., Deagle, M. A., Dempster, J. C., Dewis, G. M., Findlay, C. A., Gerrie, J. W., Gowda, Faust, Graves, J. H., Greenberg, N. U., Hare, G. C., Haselton, L. D., Husband, C. D., Irwin, A. W., Layter, G. C., Leith, A., Lesik, J. I., Lindsay, H. R., Millar, J. P., Moffatt, H. F., McBrien, J. M., McCaffery, H. M., Powell, H. B., Robb, H. M., Smith, Donald, Snodgrass, W. G., Stodgell, F. J., Switzer, F. K., Tilson, J. E., Tupper, J. A., Zakus, P.

Materia Medica (Only).—Greenberg, I. I., Harrington, R., Ingimundson, A. B., Maclinow, Max, Robertson, C. S., Shapera, E.

Physiology and Histology.—Boykovich, M. H., Clark, H. E., Halldorson, O. G., Harrington, R., Lesik, J. I., Zakus, P.

Physiology (Only).—Brown, F. J., Craig, M. L., Culbert, M. R., Dairson, D. M., Dewar, W. F., Fraser, W. G., Greenberg, I. I.,

Harris, F. E., Johnson, B., Levinson, K. I., Maclinow, M., Marrell, J. H., Paterson, C. J., Priest, Marion, Robertson, C. S., Shapera, E.

Histology (Only).—Armstrong, J. J., Ball, H. G. W., Bernstein, A., Bonnell, N. L., Brohman, L. J., Burnett, C. W., Cobban, W. C., Conn, L. J., Coupland, Diprose, R. E., Golden, A., Goldin, A. D., Herron, W. H., Hyman, I. L., Leith, L. M., Lindsay, H. R., Lumsden, C. A., McCartney, E. S., Martin, J., Mason, C. T., Mayse, A., Mickle, G. A., Mills, A. C., Rogers, R. F., Shantz, S. C., Twible, R. L., Warren, J. M., Zakus, P.

Orthodontia, Jurisprudence and Ethics.—Anderson, P. G., Brock, J. F., Davis, L., Dewis, G. M., Gerrie, J. W., Gowda, F., Gruer, W. P., Hare, G. C., Haselton, L. D., Husband, C. D., Irwin, A. W., Kingman, G., Kohli, F. A., Leith, A., Lesik, J. I., Maclinow, M., Merrell, J. H., Millar, J. P., Moffatt, H. F., Powell, H. B., Priest, Marion, Robb, H. M., Smith, Donald, Snodgrass, W. G., Stodgell, F. J., Tupper, J. A., Warren, J. M.

Orthodontia (Only).—Somerville, A. A., Switzer, F. K., Whitman, O. B., Zakus, P.

Jurisprudence and Ethics (Only).—Carmichael, L. D., Dempster, J. C., Layter, G. C., Lindsay, J. C., Moffatt, H. F., McBrien, J. M.

Anatomy.—Armstrong, J. J., Ball, H. G. W., Black, Donald, Bonnell, N. L., Brohman, L. J., Burnett, C. W., Clark, H. E., Cobban, W. C., Conn, L. J., Dairson, D. M., Diprose, R. E., Goldin, A., Harrington, R., Herron, W. H., Hyman, I. L., Irwin, A. W., Leith, A., Leitch, L. M., Lindsay, J. C., Lumsden, C. A., Macartney, E. S., Malcove, H. A., Martin, J., Mason, C. T., Mickle, G. A., Mills, A. C., Rogers, R. F., Shantz, S. C., Twible, R. L.

Physics, Chemistry and Metallurgy.—Bernstein, A. H., Brown, I. F., Coupland, M. R., Craig, M. L., Culbert, M. R., Dewar, W. F., Fraser, W. G., Halldorson, O. G., Harris, F. E., Ingimundson, A. B., Levinson, K. I., Maclinow, M., Merrell, J. H., Maybee, J. A., Patterson, C. J., Robertson, C. S., Shapera, E.

Passed in Chemistry and Metallurgy.—McCaffery, H. M.

Passed in Physics and Metallurgy.—Armstrong, H. E.

Passed in Chemistry.—Deagle, M. A.

To Prolong Life



ANY of the finest achievements of the great men of the world have been accomplished when they had passed the age of 60. Galileo, Bancroft, Goethe, Lamarck, Verdi, and Herbert Spencer produced their masterpieces between the ages of 70 and 85. Titian painted one of his great pictures at 98; Joseph Jefferson continued to be a successful actor at 75; at the same age Handel wrote one of his immortal oratorios. Edison is still producing original scientific work at 80; Elihu Root is now 83; Balfour 89; von Hindenburg 80; and Clemenceau 86. John A. Kingsbury, secretary of the Milbank Memorial Fund, New York, so asserted at one of the sessions marking the close of the International Conference of Social Work.

Mr. Kingsbury said that the United States Government spends only \$75,000 a year for developing rural health work, for the protection of human beings, while it spends over \$8,000,000 for the protection of animals. He told of one state

having recently appropriated \$250,000 for bovine tuberculosis, while disapproving at the same session of the Legislature a request for \$5,000 for the prevention of human tuberculosis.

"We Americans seem to be willing to spend large sums of money in the care of the end results of illness, but comparatively little for the prevention of disease," he declared. "It is surprising that the forty-eight states, composing a nation which completed the Panama Canal, should be willing to spend more than \$178,000,000 in the care of the sick and disabled, while appropriating less than \$26,000,000 for sanitation and conservation of health. Do we believe that an ounce of prevention is worth a pound of cure? A recent study of expenditures of 247 American cities, having a population of 30,000 or more, showed an average appropriation of \$14 per caput for education, \$7.33 for police, fire and other protection of person and property, and only 91 cents per caput for conservation of health.

"Any activity which results in obtaining for mankind a longer, happier and more efficient life must also result in social progress and ultimately in the universal improvement of the human race," said Mr. Kingsbury.

"With the spreading knowledge of the needless economic burden imposed on the individual by preventable illnesses; with the realization of the possibility of achieving Pasteur's ideal of the eradication of all germ diseases as yellow fever has been eradicated; with the development of a community health consciousness, created by health education and demonstration; with a developing demand for qualified whole-time health officers; with the growing public appreciation of what constitutes adequate medical care; and with a new generation of medical practitioners now being trained in modern medical schools whose curricula include the subject of public health—with the consummation of these factors the apathy toward public health and personal hygiene will disappear, funds commensurate not only with the sums spent for fire and police protection, and with those spent for education, will be appropriated; with these factors we shall see in every rural county and corresponding district, as well as in every city, a whole-time, trained health officer, and in every nation that claims to be civilized we shall see a Minister of Health, with ample funds at his disposal for the proper protection of the health of his countrymen."

An Appreciation — C. N. Johnson

JAMES GREGORY O'NEILL, D.D.S.

EPISODES and contacts make up our life. Their influences are either good or bad. They may leave joy or sorrow in our hearts. One of the most joyful occasions, one that shall ever be indelibly stamped on our mind, occurred in the month of May of this year, at a banquet of the Massachusetts State Dental Society, in Boston, at which were many prominent people outside of our profession. It was the first time that the Governor of the State of Massachusetts had been present at one of these functions. Our emotions gave to our body a slight tingle when Governor Fuller and his retinue entered the banquet hall, and the mild glow incited by the presence of the notable Governor of the great state soon developed into a real thrill, when Dr. Charles Nelson Johnson, of Chicago, soon afterwards entered the room and took a seat at the head table, beside Governor Fuller.

We knew Dr. Johnson would speak. The toastmaster told us, during the progress of the dinner, that we would be called upon to respond to the toast of Canada. We were the only ones from Canada, and, in courtesy to us, we led off when the Governor concluded his speech. As we arose from our chair our mind was in a state of chaos as to know what we should say. Turning very slightly we gazed directly on the face of Dr. Johnson, who at that instant was sitting forward glancing over the table in a searching gaze. Those keen, alert eyes met ours, and in that instant there was flashed to us an inspiration for our little message for this particular occasion. That thought wave between two native sons of our fair Dominion crystallized into the following words:

"We are very glad indeed to have the privilege of saying a few words to-night about a man to whom we have never been formally introduced, and who undoubtedly does not know any more about us than he does of the grains of sand along your seaboard. More than twenty years ago, while we were a freshman at the Royal College of Dental Surgeons in Toronto, the regular professor in our eight-thirty morning lecture entered the room with another man. He told us that this man would give us our morning lecture, and then introduced Dr. C. N. Johnson. We got a tremendous kick at that time from

his presence in our midst. The thrill was greater then than it was in later years, when we had a little chat with, and shook the hand of, the Prince of Wales. To-night that intense enthusiasm of youth is toned down, but in its place there is mature respect and admiration for Charles Nelson Johnson, and thanks in our heart for having again been privileged to cross the path of one of the finest characters that the profession of Dentistry has given to us. He is a native son of our country, whom we respect and love, and is one of the brightest constellations that our country has contributed to yours. He has contributed so much to our profession, and done it so unselfishly, that he stands right at the very top. He has been a fine and lasting inspiration. We have never talked to him in our life, but we never fail to read anything he writes. His writings, apart from the subject of dentistry, deserve a place in the best literature of our time. His short pieces of writing are like beautiful miniature cameos. They are so essentially epic, because of their dignified theme, organic unity and orderly progress of action. With the epic qualities are combined a philosophy of life that shows wisdom, understanding, and that rare gift of sane and reasonable tolerance.

Charles Nelson Johnson, we salute you! We are exercising our prerogative to-night of free speech. It is the first occasion in our life that this opportunity has arisen. It may never come again. While we are here we are going to pass along these sincere thoughts to you, in the presence of these members. We feel that you so justly deserve it. Others may write them in your obituary notice. We like our flowers when we can admire them.

Do not put aside that virile pen of yours, for we believe greater and better things will come from it. For was there not a man named Browning who wrote:

"Grow old along with me,
The best is yet to be."

Doctor Johnson, I now leave you and again salute you. It is not our fault that this sketch of you is so inadequate, but we cannot paint landscapes on three-penny bits."

One of the earliest hospitals on record was founded in Ireland, 300 B.C., by Princess Macha. It was called "Broin Bearg," house of sorrow.—(Sir W. Wilde "*Notes on Ancient Ireland*").

The Broader Cultural Side of Professional Life

Extract from paper by R. R. Byrnes, D.D.S., in Dental Cosmos.



AMONG enlightened people it cannot be gainsaid that dentistry as a profession is invaluable to society. No profession or organisation is greater than its personnel. As a factor in the general preservation of health, the dentist occupies the same plane of importance as the physician, the bacteriologist, the chemist, the sanitary engineer, and other workers in similar fields who are directly concerned with lessening the world's physical ills.

Dentists, as dentists, have meant much to the world. No body of men could be more devoted to a profession than are dentists to theirs. However, notwithstanding conspicuous exceptions, the average dentist is less concerned about the broader, cultural side of his life.

When dentists get together there seems to be but one theme—dentistry. "Talking shop" is a good thing and one not to be discouraged, but, as a continuous diet, it is not always palatable. A dentist should be able to forget for awhile the happenings in his surgery; he should be able to divert his attention to other things and to talk of other things. If cultivated, this mental habit will refresh him and, at the same time, will make of him a better dentist as well as a better conversationalist.

The achievement of a broader interest may appear difficult to some, but man has complete control over his thoughts and can direct them according to his will, even though they have been content for years to travel in habit-worn paths. Such interest is not altogether spontaneous. It may be cultivated.

A broader cultural education will bring a greater happiness, a greater appreciation of life. It will enable the individual to get more out of life. But there is one caution to be observed when going culture-seeking. While cultivation increases the capacity for appreciation and pleasure, it may likewise increase the capacity for mental pain.

If a dentist thinks that his profession does not give him the social standing he deserves, the fault lies with him alone. The

dental profession is what dentists make it. The dentist must look within himself for the improvement of his social status.

* * *

*Extract from Paper by Nicholas Murray Butler, LL.D.
President, Columbia University, in The Medical
Journal and Record.*



EDICINE and law have both lagged behind many other forms of training just because of their traditions, and what I may call their professional self-consciousness. They have tended to find so much that was deemed essential within the limits of professional knowledge that there has been surprisingly little thought of those ancillary and supporting knowledges and experiences which make this professional knowledge more useful, increase its power and multiply its influence.

All that is the argument for raising the point at which professional training begins. Everyone is trying to get as much of that general knowledge as possible at the beginning of the professional student's career, but it is never going to be accomplished in its entirety. We shall have to get away, little by little, from what I call the guild point of view in the training of physicians and the training of lawyers, and get out into a little larger field where there will be not only emphasis upon the professional knowledge but also opportunity for those widening and broadening and deepening knowledges which so vastly increase professional knowledge and professional skill.

Dental Health Discussed at Kiwanis Meeting



HE speaker for the day at the Kiwanis Club luncheon at Timmins, on May 17th, 1928, at the Empire hotel was Dr. Lee Honey, who gave a remarkably interesting and helpful address on "Good Health." There was a large attendance and all greatly appreciated the very inspiring address by Dr. Honey.

In opening his address the speaker pointed out that the word "health" is derived from the same word as "whole." Health thus carried the idea of "wholeness," and in its wider sense the idea of health includes the mental, moral and physical well-being.

Dr. Honey referred to the interest of the nation in health. The Government has its department of health with representatives in all parts of the country. All organized society was interested in health, also capital and labour, Christian and atheist; the army, and in civil life; wherever people are gathered together their concern is regarding their health. But by a peculiar coincidence the individual upon whom this greatest of all nature's gifts has been bestowed, is not always particularly interested. "You know this is true from your own experience," said the speaker, "for how often have you consulted your physician for expert advice on a condition that you knew could be corrected by regular habits, diet and sufficient exercise. Yet you willingly paid the physician, hoping that his findings might excuse your neglect."

Referring to Cicero, the Roman law-giver, Dr. Honey pointed out that a man too busy to take care of his health is like a mechanic too busy to take care of his tools. Going from ancient to modern times, the speaker gave this quotation from the eminent Catholic authority, Bishop Fallon:—"It is an absolute sacred duty of every man and woman to respect their own health, in the first place; the health of their offspring, in the second place; and, so far as it will come within the sphere of their duty of their circumstances, the health of the community at large."

Dr. Honey quoted a clever little poem by John Kendrick Bangs, in which a man was pictured as understanding everything about his automobile. "What fools, indeed, we mortals are, to lavish care upon a car, with ne'er a bit of time to see, about our own machinery."

Dentist Elected Lieutenant-Governor

DR. PAUL N. CYR, dentist, of Jeanerette, Louisiana, was elected Lieutenant-Governor of Louisiana on April 17th, 1928. Dr. Cyr was the candidate of the Democratic party for that office, having been nominated by a large vote over several other candidates, at the primary election held on January 20th.

For six years he served as President of the School Board of Iberia parish, and is still a member of that body. He was for twelve years a member of the Board of Dentistry of Louisiana. He was also President of the Louisiana State Dental Society for one year.

The Effect of Rinsing the Mouth and Brushing the Teeth Upon the Number of Bacteria Present in Subsequent Rinsings

G. L. T. APPLETON, JR., B.S., D.D.S.



AN attempt is made to study quantitatively the effect of (a) rinsing the mouth, and (b) brushing the teeth with a tooth-paste upon the number of bacteria in subsequent mouth rinsings. Numerous tests were made on three individuals.

A modification of the method of determining the number of bacteria suspended in a liquid by diluting, plating and counting the resultant bacterial colonies is described. Upon analysis this method seems capable of giving valid results, and the consistency of the results actually secured lend support to this belief.

(1) Vigorous rinsing of the mouth with tap-water produces, on the average, at most but a slight and transient decrease in the number of bacteria removed by an immediate second rinsing. This decrease disappears within an hour, actually within a little over thirty minutes.

(2) A second rinsing, which has been immediately preceded by a vigorous rinsing, and by a thorough brushing with a simple, non-medicated toothpaste, contains on the average about 45 per cent. less bacteria than the first rinsing. When the second rinsing is postponed until about sixty-five or seventy minutes after the first, the number of bacteria in the second approximately equals that in the first rinsing. When the second rinsing is made an hour and a half after the first, the number of bacteria in the second is 10 or 12 per cent. greater than that in the first. These are average figures, but individual sets of rinsings show wide variations.

(3) The results given in (1) and (2) above seem to hold, irrespective of the absolute number of bacteria obtained in rinsings from different individuals.

(4) The immediate decrease occasioned by brushing is much greater than that occasioned by simple rinsing, and, while after simple rinsing the number of bacteria in the mouth, removable by rinsing, has come back within slightly more than

half an hour to the base level of 100, this level is not reached after brushing until slightly more than an hour has passed. In fact, the time necessary for the first rinsing level to be regained is in the case of brushing about twice the time necessary in the case of simple rinsing (72:36).

(5) Some of the relations of these results to oral hygiene are discussed.—*Dental Cosmos*, October, 1927.

The Radiogram as an Aid in Diagnosis

J. ORTON GOODSSELL, JR., D.D.S.

 HE radiogram is not infallible, but it does remain the greatest single agent in oral diagnosis, and, if properly used in collaboration with other methods, will prove invaluable and practically indispensable in every case. In simple extractions, where radiograms are not available, the alveolar socket should be carefully explored to determine post-operatively whether the bone is normal or will become normal by virtue of the extraction.

All patients, who are seen because of somatic disturbances, should have a complete oral radiographic examination not only of the tooth-bearing areas, but of the edentulous spaces as well. It is just as essential to know whether the patient has any residual infection following earlier extractions, or whether he has a root or impaction, as it is to know about the tissue surrounding the tooth. Incisors, and occasionally other teeth, which on gross inspection appear of good colour and normal, are frequently found to be involved apically, due to some trauma which may, or may not, be remembered by the patient. All patients having headaches, not attributable to optical diseases, and especially obscure pains referred to remote branches of the fifth nerve, should have complete oral radiographic examination for the purpose of locating possible unerupted teeth and infections.

When taking radiograms of edentulous mouths, if the exposures are made without any thought of marking the films as they are exposed, it will be difficult to determine, after development, which areas the films represent. This is due to the fact that the landmarks which the teeth ordinarily present are lacking, and the location of the areas of bone consequently

difficult. To minimise this trouble a pair of scissors and pencil and paper may be used to advantage. Suppose a radiogram of the maxillary molar area is required. Before taking the radiogram analyse the situation and determine the number and position of the films to be taken; then mark out on a piece of paper the films as they are to be taken, so that the drawing appears like a film mount that is to hold the exposed films. Now take the film that has just been exposed and, before exposing another, use the scissors to cut off a very small corner of the film, or make a small cut into the film at some definite place. Then turn to the diagram made and, with a pencil, mark the rectangle representing the maxillary left molar area in exactly the same place and manner used in cutting the film. This method is followed out in the maxillary left bicuspid film, except that the cut and marking will be just a little different, or in a different relative position on the film. Now proceed all around the mouth in the same way and when the films are developed and dried they can be mounted very readily, without error, upon reference to the little diagram. If this plan is carried out, the unfortunate accident of looking on the left side for a root that holds forth on the right side will be avoided.

Unerupted teeth, or residual roots, can sometimes be located mesiodistally, or infero-superiorly, by using a known landmark on the film and measuring the distance from it to the root, on a match stick, or on an applicator. The measurement is then transferred from the film to the mouth, and the incision is made over the marked point.

Dental radiograms should be examined systematically so as to insure that no possibility of pathology is overlooked. The line around the tooth (lamina dura) should be completely traced and any breaks in its continuity attributable to abnormal destruction should be noted. Notice, also, whether the interproximal bone shows any recession, indicating gingival irritation. Then the crowns of the teeth are studied, for the purpose of finding caries. Next look for pulp stones and faulty fillings. Follow this by an examination of all the bone to see if there are residual roots, residual cysts or infections, and unerupted teeth. Films thoroughly examined in this manner are readily disposed of, with little chance of error.

If there is any question concerning an area which has been radiographed, one or more check-up films should be made at different angles.—*Dental Digest*.

What I See in My Dentist

BY A PATIENT.

THINGS MY DENTIST DOES I LIKE.

1. I like to be treated like a human, not like a wooden dummy.

2. I like to see him put a clean glass on the little shelf by the cuspidor when I get in the chair.

3. I like the cold cream he uses on the corners of my mouth, it stretches about four to six inches more, much easier, under such treatment (this makes room for another half pound of cotton.)

4. I like his individual attention when he's working on me.

5. I like plenty of fresh air, but I don't like the sun in my eyes.

6. I like to have my lap covered with a towel, I wear my dress short. Can you understand?

7. I like to see the place clean; I mean clean; cotton and the like on the floor don't make me feel good.

8. When he drills, I want him to drill *now*, get it over with, but I sure like the cold water to keep it from hurting.

9. I like to get in the chair as soon as I can, I don't like to wait an hour. What good is my appointment anyway?

10. I like to have an idea about what he is doing. My dentist doesn't seem to be ashamed to tell me what the difference is in dentistry. I know enough about it to know some of my "restorations" (he is a bear for this word) are not quite what he wanted, but boy! those places sure hurt. Yes, he uses locals too, but I don't like the effect of the "dope" in my jaws.

11. I like to get reminded of taking care of my teeth; he calls me every sixty days. I know why, too, I believe him when he says six months is too long. He's proved it to me.—*Hettinger's Dental News*.

As a distinct vocation dentistry is first alluded to by Herodotus (500 B.C.). There are evidences that at an earlier date the Egyptians and Hindus attempted to replace lost teeth by attaching wood or ivory substitutes to adjacent sound teeth by means of wires or threads.

Notes on the Dentitions of Three Bronze Age Skeletons

BY DR. J. MENZIES CAMPBELL, GLASGOW.

("The Bronze Age" marks a period of civilization through which it is believed that most races passed, at one time or another, and intermediate between the Stone and the Iron Ages, when weapons, utensils and implements were, as a rule, made of bronze. The "Bronze Age," in Europe, is fixed by most authorities as between 2,000 B.C. to 1,800, B.C., according to the Encyclopedia Britannica. The author does not state what evidence was present to prove that the three skeletons referred to were of the Bronze Age period.—Editor).

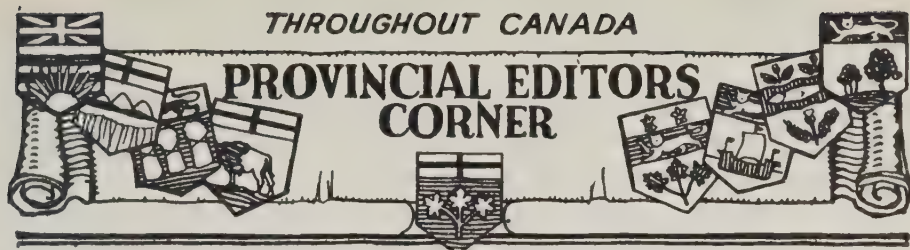
HESE skeletons were discovered by L. M. Mann and E. S. Scott, Glasgow, April, 1928, and were carefully examined by Dr. Campbell; the complete report appearing in the British Dental Journal of June 15th, 1928. The state of preservation of the skull and teeth is very remarkable, particularly in two of the specimens.

There were found evidences of abscesses, such as cavities around the roots. Salivary calculus was present on many of the remaining teeth. Caries was entirely absent.

Dr. Campbell's deductions were that two of the skulls were orthognatic and the relationship of area of palate to capacity of skull is, in each case, high, indicating that the individuals were, mentally, well developed.

From the amount and situation of attrition, it would appear that the mandibles were possessed of more lateral movement than is the case nowadays. No caries found, therefore food was probably very coarse and of such a nature that it tended to clean, rather than to adhere, to the teeth. The cereals were ground between stones, and this allowed grit to become incorporated with the food, which grit caused the attrition.

Fauchard was the first to suggest porcelain as an improvement on bone or ivory for the manufacture of artificial teeth, a suggestion which he obtained from Reaumur, French savant and physicist, who was a contributor to the royal porcelain manufactory at Sevres.



British Columbia—EMORY JONES,
D.D.S., New Westminster, B.C.

Alberta—JOHN W. CLAY, D.D.S.,
914 Herald Bldg., Calgary.

Saskatchewan — C. W. PARKER,
D.D.S., Imperial Bank Bldg.,
Regina.

Manitoba—W. W. WRIGHT, D.D.S.,
767 Warsaw Ave., Winnipeg.

Maritime Provinces—J. STANLEY BAGNALL, D.D.S., 34 Larch Street,
Halifax, N.S.

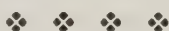
Ontario—LIEUT.-COL. W. G. THOMP-
SON, 46 Sun Life Bldg., Hamil-
ton.

STANLEY G. MCCaughey, D.D.S.,
384 McLaren St., Ottawa.

Quebec—M. L. DONIGAN, D.D.S.,
1396 St. Catherine St. W.

PAUL GEOFFRION, D.D.S., 308
Sherbrooke Street, Montreal.

*Provincial Editors will appreciate receiving from all local societies copies of
papers, society proceedings or personal notes, for publication.*



MARITIME PROVINCES.

THE semi-annual meeting of the Western Counties
Dental Association of Nova Scotia was held at
Goodwin's Hotel, Weymouth, on June 22nd.

Dr. Turnbull gave a clinic demonstrating the
taking of muscle trimmed impressions.

Dr. Hogan demonstrated a method of taking impressions
with pink wax and plaster. The first stage of the impression
taken in pink wax, which is trimmed, and then the impression
finished with plaster.

Dr. E. S. Allen gave a talk on his experiences and recollec-
tions of dental practice during the last thirty years, comparing
the practice of dentistry then and to-day.

The following officers were elected: President, Dr. H. L.
Mitchener; 1st Vice-Pres., E. S. Allen; 2nd Vice-Pres., A.
W. Taylor; Sec.-Treas., G. V. Turnbull.

The Western Counties Association comprises the dentists
practising in the western counties of Nova Scotia. Meetings
are held twice yearly and the attendance includes most of the
members. It is a live organization which has done much in
its short history to improve dental conditions in its area, and
when the Annual Nova Scotia Convention is held a goodly
proportion of their members are among those present. There
is not only the opportunity, but a real need for other dental

organizations of the type of the Western Counties Association, where members of a definite locality can meet together socially and discuss their common problems.

* * *



THE thirty-fourth annual convention of the Nova Scotia Dental Association was held in Dalhousie Dental College, Halifax, on July 17-18-19. The first day of the meeting was devoted to the business of the Association. The usual reports were presented. Two matters of business which came up were the new by-laws of the Association, which were discussed at some length, and also the reorganization of the Canadian Dental Association. The Provincial Association again placed themselves on record in favour of the scheme and voted a sum sufficient to cover the membership fees of all resident ethical dentists. Dr. A. W. Faulkner was again elected delegate to the next meeting.

The scientific part of the meeting centred around a series of clinics by Dr. L. D. Leslie, of the S. S. White Co. He gave a talk on the various steps in Full Denture Prosthesis, then carried a practical full upper and lower case through, the clinics running along for a couple of days after the regular sessions were completed. Dr. L. D. Leslie, in his concise presentation of the various problems, gave a technique readily followed, and adaptable to any practice. Few clinics held before the Association have been more favorably commented on.

On the afternoon of the second day a trip was made to the beach at Queensland. A number of entertainments were planned, but the best part of the outing was the impromptu sing-song, led by two of our deservedly popular members.

Dr. G. R. Hennigar resigned as Secretary-Registrar of the Dental Board and the vacancy was filled by the appointment of Dr. C. B. H. Climo, 315 Barrington St., Halifax. Dr. Harry S. Thomson was present and gave a most interesting talk on Oral Hygiene, dealing particularly with the Saskatchewan campaign.

The following officers were elected: President, Dr. J. P. Parker, Sydney; Senior Vice-Pres., E. S. Allen, Yarmouth; Junior Vice-Pres., C. S. McArthur, Truro; Additional member of Exec., J. H. H. Rice, Halifax; Secretary, J. Stanley Bagnall, Halifax.

The next meeting will be held in Truro during the summer of 1929.

* * *

The annual meeting of the P. E. Island Dental Association will be held in Charlottetown, on Aug. 8th.

J.S.B.

* * *

QUEBEC.

MONTREAL DENTAL CLUB.

 THE Fourth Annual Fall Clinic will be held this year in the Mount Royal Hotel, on October 18th, 19th, and 20th, immediately following the 25th anniversary of the University of Montreal Dental School, who are holding a three-day meeting on the 15th, 16th, and 17th.

The following clinicians will be in attendance and will give papers and clinics in their respective subjects:

Dr. W. S. Lasby, of Minneapolis, "Full Denture Work."

Dr. E. S. Sullivan, of Boston, "Children's Dentistry."

Drs. J. E. Aigueur and J. L. Appleton, of the Philadelphia Stomatological Society, "Dental Therapeutics."

The Detroit Clinic Club will put on a clinic on Fixed Bridge Work.

Dr. Leo Winter, of New York, will operate to the entire assembly on the morning of the 19th. Selected Oral Surgery cases will be welcome.

The fee will be the same as last year, \$20.00, which includes the two luncheons, and as the attendance will be limited, reservations should be made immediately to the Secretary, Dr. D. D. MacDonald, 1396 St. Catherine St. W., Montreal.

M. L. D.

* * *

EASTERN ONTARIO.

 THE Fifty-first Annual Meeting of the Eastern Ontario Dental Association will be held at the Chateau Laurier, Ottawa, on October 1, 2 and 3.

Monday evening, at 8 o'clock, the regular business session will be held. Tuesday and Wednesday, there will be papers and clinics by Dr. Hugh Ross, of Toronto, on "Operative"; Dr. W. G. Switzer, on "Prosthetic"; and Dr.

D. P. Mowry, of Montreal, on "Periodontal." Tuesday, at the noon luncheon, Dr. Geo. Campbell, of Ottawa, will speak on "Light Therapy."

Tuesday evening there will be a dinner dance and bridge, and Wednesday afternoon, the annual golf tournament will be played at the Rivermead Golf Club.

The programme is a good one: Ottawa is beautiful at this time of the year, and we hope to have a very large attendance.

D. C. W. COUPLAND, D.D.S., *Secretary*.

* * *

ALBERTA.

DR. ALFRED GYSI, of Zurich, Switzerland, accompanied by Dr. George Wood Clapp, of New York, gave a clinic and an address in Edmonton and Calgary, the end of August. Almost half the dentists in the Province registered at the meetings.

Dr. Gysi's work was remarkable for its practical value to the average practitioner, and for his ability to make abstruse and difficult studies intelligible to his audience. His moving charts or diagrams told a big story in a moment.

Alberta dentists were fortunate in having this opportunity to meet and hear Dr. Gysi.

* * *

At the meeting of the Alberta Association it was voted unanimously to support the Canadian Dental Association. Its objects and constitution were approved, and the Province will stand back of the Association. There should soon be about two hundred members of the C.D.A. in Alberta.

Should this same fortunate result be obtained throughout Canada there will be a strong membership behind the Association. With this support, and its present able officers, we may confidently expect it to prove its value to the Dental profession in Canada.

J. W. C.

Chicago Dental Society

THE Chicago Dental Society's annual Mid-Winter meeting and Clinic will be held January 15th, 16th and 17th, 1929, at the Stevens Hotel, Chicago.



---Of Human Interest

This Department is Conducted by
G. MERRICK SINGLETON, D.D.S.

I invite you to read my page, and hope that you may find here, as I have, something which will cause you for a short time at least, to forget a few of the many perplexities of our daily round.—G.M.S.



New York and Jenny Lind

QUON a recent visit to New York, I spent considerable time in exploring the older part of that great city, that section which comprises the lower part of Manhattan Island, and which is often referred to as "Little Old New York."

This section is particularly attractive to antiquarians, being so richly endowed with the hoary traditions of days long past. Through the old streets, whose very names revivify memories of by-gone days, there seem to pass in steady procession visions of men and women, whose names shall endure, and whose memory shall long remain sacred, for having so nobly contributed their share and played such big parts in the early making of their country.

After visiting Holy Trinity Church, which is so sadly out-of-place there amidst the towering sky scrapers, I spent some time in deciphering the quaint inscriptions and epitaphs on the old tomb stones which surround this historic pile, many of them dating back over two hundred years.

Then proceeding down Broadway, I finally came to what is known as the Battery. Here many old landmarks claimed my attention, and after visiting them all, I came lastly to a great round building with an arched dome, the Aquarium, world famous for its wonderful collection of sea life. Before visiting this, however, I sat down upon a nearby bench to rest, and in a retrospective mood, recalled the history of this famous building. Famed not so much for its occupants of the present day, but rather as a magnet which in the days gone by drew to it fashionable and music-loving New York. It was in this building that Jenny Lind, "The Swedish Nightingale," made her initial American appearance, having been brought to this country by that man of many parts, Mr. P. T. Barnum.

Jenny Lind — "The Queen of Song," what visions her

name conjures up—what visions of a triumphant prima donna to whom all the world did homage. By nature she was a shy and very humble-minded woman, with lofty ideals and tastes of almost nun-like simplicity, and whose aversion from publicity was so sincere that at the early age of twenty-nine she abandoned her stage career.

She was of middle-class parentage, and was born at Stockholm, in 1820, and the story is told that before her fourth birthday she was discovered "picking out on the old spinet in the attic a tune which passing soldiers played." At sixteen she obtained a permanent engagement to act in royal opera "at a salary of some three hundred dollars a year," and when she was only twenty, King Carl Johann appointed her court singer. Her London debut was made in "Roberto il Diavolo," at His Majesty's Theatre in May, 1847, and we are told that the whole performance called forth one long, sustained ovation led by the Queen herself." In 1852, she married Otto Goldschmidt, a young Hamburger, but love affairs played a small part in her life.

It was in England that Jenny Lind passed the happiest years of her life, making friends in all classes of society, from Queen Victoria, by whom she was ever held in the greatest esteem, to the railway porter in a country wayside station, who, we are told, emboldened by her simplicity of manner, invited the great artist to sing at the local railwaymen's benefit concert, and as it happened, this was the last occasion on which she ever sang in public.

So this was the building in which Jenny Lind won her way into the hearts of her first American audience. I entered—but fear that my thoughts were far from the wonders upon which I gazed, rather did they again hasten back to those early days when the Swedish Nightingale was enchanting America and the whole world, in her triumphant royal progress through the realm of musical art.

A Hole in One



WE have word that Dr. J. Stewart Ritchie, of Port Arthur, Ontario, on August 3rd, in a golf game, made a hole in one shot. The most remarkable part of it is that the hole was 235 yards, and likely this is the first time such a distance has been covered in one shot on any course.

Oral Health

Vol. 18 TORONTO, SEPTEMBER, 1928 No. 9

EDITOR:

WALLACE SECCOMBE, D.D.S., F.A.C.D., Toronto, Ont.

CONTRIBUTING EDITORS:

C. N. JOHNSON, M.A., D.D.S., F.A.C.D., Chicago.

W. E. CUMMER, D.D.S., F.A.C.D., Toronto.

Entered as Second-Class Matter at the Post Office Department,
Ottawa.

Subscription Price, Canada and United States, two dollars per annum; elsewhere three dollars. Single Copies 25c. Free distribution to all members of the Dental Profession practising within the Dominion of Canada and Newfoundland.

Original Communications, Book Reviews, Exchanges, Society Reports, Personal Items and other Correspondence should be addressed to the Editor Oral Health, 102 Wells Hill Avenue, Toronto 10, Canada.

Subscriptions and all business Communications should be addressed to The Publishers, Oral Health, Royal Bank Building, 269 College St., Toronto, 2, Can.

EDITORIAL

Reciprocity in Dental Licenses and National Boards of Dental Examiners

FOR the past few years committees have been at work in the United States of America on plans for the organization of a National Board of Dental Examiners, and at meetings held in Minneapolis during the past month the movement was further advanced toward ultimate accomplishment. There appears to be little intention of establishing a national body with arbitrary powers, but rather a voluntary board somewhat comparable to that of the Dominion Dental Council of Canada. It is expected that such a board will bring about a greater degree of co-operation among the state boards of America and assist in the unification and maintenance of approved standards of education. A national board might also prove of great value in advising and helping the State Boards in the enforcement of dental legislation and in such disciplinary action as might be taken against illegal or unethical practitioners of dentistry. At the recent

meeting of the National Association of Dental Examiners complimentary references were made to the work of the Dominion Dental Council and this country was complimented upon the fact that a majority of her provincial boards were actively co-operating through the medium of the Dominion Dental Council.

One of the more important functions of an examining Board is the holding of a proper balance between the number of licensed dentists upon the one hand, and the public demand for dental service upon the other. A well-organized national board might be of assistance to local boards as a clearing house for general information covering this problem as viewed from the broader national field.

It is unfortunate that the important position and work of the D.D.C. and of the licensing Boards throughout Canada is not more generally recognized. There appears to be a popular misconception that licensing boards act primarily for the dental profession, whereas they are in reality Government Boards acting for the whole community. The best interests of the dental profession never conflict with those of the people. Should they ever do so, so much the worse for the dental profession. In the detached judicial position which dental licensing boards occupy under the law, they are able to render the greatest possible assistance both to their chosen profession and to the public whom they serve.

There are those who would entirely supplant the present local boards by national bodies, but such plans, while theoretically ideal, entirely overlook the more practical considerations. Each board must of necessity have knowledge of local conditions and are surely to be trusted not to become too provincial in outlook, losing sight of their national and broader professional responsibilities.

A satisfactory plan of national examination and registration will doubtless eventually be developed to include the sympathetic and active co-operation of local dental boards. In the meantime every effort toward the accomplishment of a measure of reciprocity in dental licenses should receive the enthusiastic support of the entire profession. It ought surely to be made possible for the ethical dental practitioner of many years' standing, who desires to move from one province or country to another for family or personal reasons, to do so without taking the entire gamut of examinations as required of recent graduates.

Persistence

*N*OTHING in the world can take the place of persistence. Talent will not; nothing is more common than unsuccessful men with talent. Genius will not; unrewarded genius is almost a proverb. Education will not; the world is full of educated derelicts. Persistence and determination are alone omnipotent. The slogan, "Press on," has solved, and always will solve, the problem of the human race.—Selected.



ALFRED GYSI, D.D.S.
University of Zurich, Switzerland

DOCTOR GYSI has spent the past two months in United States and Canada giving a series of lecture-clinics upon the subject: "Practical Conclusions from Scientific Research in Denture Construction."

ORAL HEALTH

*A JOURNAL THAT STANDS FOR THE OUNCE OF
PREVENTION AS WELL AS THE POUND OF CURE*



Vol. 18

TORONTO, OCTOBER, 1928

No. 10

Report of a Case of Osteomyelitis of the Mandible Caused by a Retained Root

W. AUBREY CRICH, D.D.S., DENTAL DEPARTMENT,
LOCKWOOD CLINIC, TORONTO.



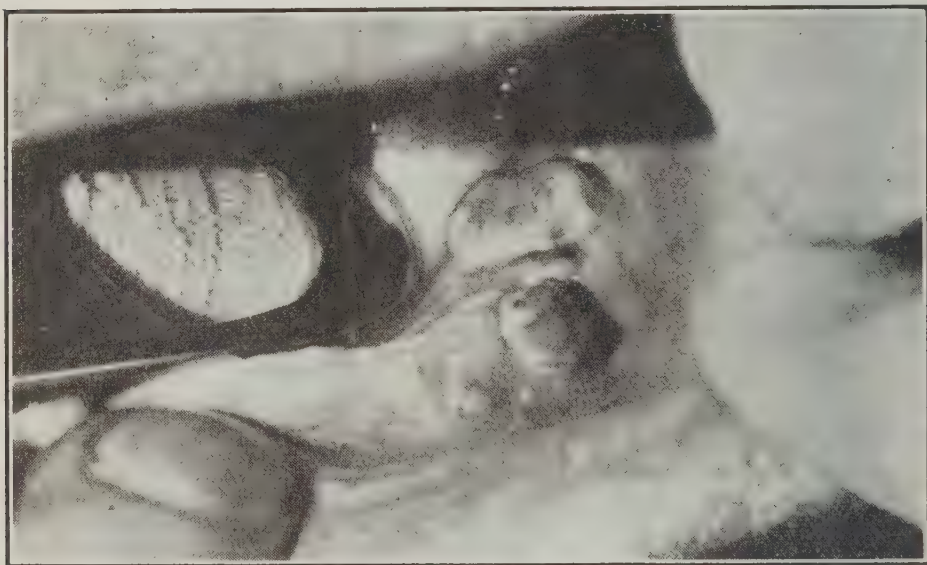
R. G., aged sixty-three years, was referred to the Lockwood Clinic on May 15th, 1928, on account of a swelling of the lower jaw on the left side, with marked discharge of pus into his mouth. Three weeks before coming to the Clinic he had contracted a severe cold which confined him to his bed. During this illness the gum tissue on the lower left side of his mouth began to swell, but this condition was not given much attention. The "cold" soon began to improve, but the mouth condition continued to get worse. About May 5th pus began to be discharged from the swollen mass. X-rays were ordered, but extra-oral films of the jaws taken both anter-posteriorly and laterally were reported negative. All the lower teeth had been removed two years previously and the patient had been wearing a full denture since that time without discomfort. He reported a feeling of numbness in the left half of his lower lip for the past week.

The patient had the appearance of a well-nourished individual, but anæmic in colour, the conjunctives being particularly pale. He had been a miner until 1918, but was now living retired. There was a depression of the nasal bones, but the patient could not recall ever having received an injury which might have caused it. The fingers were club-shaped and the finger nails were markedly rounded over the ends of his fingers.

EXAMINATION OF THE MOUTH.

Examination of the mouth revealed a large, swollen mass of the lower alveolus surrounded by inflammation of the ad-

joining tissue. There was one large sinus, crater-like in appearance, and two other smaller sinuses anterior to it. Thick, yellow pus, of disagreeable odor, was draining from all three of these. The tissue covering the roof of the mouth was thickened and white, resembling leucoplakia. There was a small white patch on the buccal mucous membrane of the cheek on each side in the molar region. The patient said that he was a heavy smoker. The papillæ of the tongue appeared normal. About two fluid drachms of pus were expressed from the sinuses and then the area was saturated with 5% merurochrome. Intra-oral radiograms of the lower left jaw were made with the hope that more detail of the bony tissue might be obtained. The patient was advised to rinse his mouth frequently with a warm mouth wash, and on account of this unusual condition was referred for a general examination.



No. 1.—Multiple sinuses appearing on the lower left alveolus of a patient suffering from osteomyelitis of the mandible.

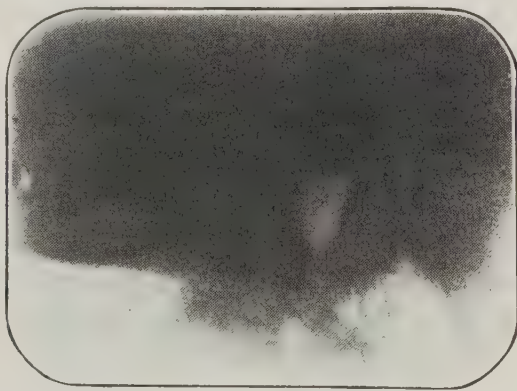
The differential diagnosis at this time was (1) osteomyelitis of the jaw, with a possible retained root the exciting factor. (2) gumma (3) carcinoma (4) inflammatory mass (5) anæmia (6) actinomycosis.

The last mentioned condition is extremely uncommon, but should always be borne in mind. As no characteristic sulphur bodies could be seen on examination of the pus, this disease was excluded.

It is not uncommon in patients suffering from pernicious anaemia to find an osteomyelitis caused by a retained root spicule. Although this patient looked anæmic, he had not had any previous illness, nor did his tongue present the picture associated with this condition. Besides this, there was no history of tingling or numbness in any of the extremities.

There had been no weight loss to bear out a diagnosis of malignancy, but the lesion had only been present for a period of ten days.

The general examination proved to be essentially negative except for the condition mentioned above. The blood hæmoglobin was 100% according to the "Sahli" method. The white blood cells numbered 5,700. The blood Wassermann was negative. The intra-oral radiograms showed a small retained root, which appeared to be lodged in the centre of the mass, and nature was evidently endeavouring to exfoliate this foreign body. With the finding of this root and the negative blood report, it appeared as if the lesion were only an inflammatory mass.



No. 2.—Dental X-ray of lower left alveolus of a patient suffering from osteomyelitis of the mandible. The root of a tooth will be seen lying on an inflammatory mass.

TREATMENT.

On May 18th, under conductive anæsthesia, the root was removed and a specimen of tissue was taken for "quick-section" microscopic examination. The pathologic report on this tissue was "sub-acute and chronic inflammatory tissue." The area was opened widely by an incision joining the three sinuses, cleaned out, curetted, and soaked with 6% iodine. The cavity was then packed with iodoform gauze. Two days

later the gauze was removed and replaced by a smaller piece, just large enough to ensure good drainage. The wound was syringed daily and continued to show improvement. On May 25th a small sequestrum of bone was removed. A small amount of yellow pus still continued to drain from the wound. More dental radiograms were made and these showed another sequestrum almost ready to be exfoliated.

On May 28th this sequestrum, about the size of a cherry, was removed. The wound looked much cleaner the following day. The patient was dismissed on June 4th, and at that time the tissue looked healthy, but there was still a small opening which had not entirely closed. The patient reported that the numbness was leaving his lip and that it felt almost normal again.

The benefit of intra-oral radiograms compared with those taken extra-orally is here illustrated. The case is of interest also because it shows what trouble may result from leaving a root in a jaw. It may also be surprising to many of us to learn that a denture could be worn over a retained root for a period of two years without manifesting itself. The old theory that all roots left in the jaw will finally move to the surface and be exfoliated, is absurd. X-ray constantly demonstrates that roots have been retained for years. Frequently large areas of bone destruction will be seen around these roots and because of no existing local symptoms the patient is unaware of possessing a focus of infection of this kind in his mouth. It would be fortunate if nature set up some local symptoms which would serve as a warning that such a condition existed.

Surgical Removal of Teeth



ONE school of thought exploits the view that the removal of all deformed teeth should be carried out "surgically," but—as Dowsett has pointed out—any operation performed aseptically and with properly designed instruments can very properly be termed "surgical," so that orthodox extraction with forceps is equally deserving of this title, and should, in fact, be the method adopted in all but the most exceptional cases.—R. CUTLER, L.D.S.

Dentistry for Children*

JOHN E. GURLEY, D.D.S., F.A.C.D., SAN FRANCISCO.



HILLIPS BROOKS once said, "He who helps a child helps humanity with a distinctness, with an immediateness which no other help given to human creatures in any stage of their human life can give."

"Advancement in the sciences, especially that of preventive medicine, has made possible tremendous gains in the reduction and prevention of disease, with the resulting prolongation of human life. As the teachings of preventive medicine are more widely diffused and more effectively applied, enormous additions are made to real strength and happiness." †

Dr. Wm. Hassler, Health Officer of San Francisco, in a recent article used these statements:

"A nation's true wealth lies, not in its lands and waters, not in its flocks and herds, but in its healthy and happy men, women and children."

Dr. Hassler has spoken well in these words, but throughout his article he is dwelling upon the social, rather than the scientific, and the burden of this thesis is to stress the latter thought.

That our children have always had our first love, there can be no question. But the last few years have shown quite conclusively that our love has not been altogether wisely spent, and we are now giving more attention to their physical defects, the most common of which are to be found in the teeth.

We have been practising dentistry for a good many years, relieving aches and pains and making restorations of all the various types. This is still and ever will be necessary, yet may it not be suggested that the time is now here to think very definitely along the line of prevention. In fact, that time is now here and for two reasons, namely, first, we are not doing our full duty if we do not apply means at hand or use every endeavour to determine means by which troubles may be avoided. We would help the other fellow socially, if he were about to be hurt, so why not do the same in the field of

* Read before the Constituent Associations of the Pacific Coast Conference, June and July, 1928, and of which British Columbia Dental Association formed a part.

† Fourth Annual Report to the Directors of the American Child Health Association.

science? Secondly, progress in all lines of human endeavour is made as a result of either a great catastrophe or some new discovery. Look over the field of health—note the various theories of cause of disease in medicine and see the progress made. Visualize the inestimable good that has come as the result of the so-called Focal Infection Theory. Dentistry has been materially advanced, and the people whom we serve, benefited to an even greater degree. Therefore, since we have been talking more or less vaguely about prevention for a considerable time, it would seem that the time has now come to make a real step forward along the most obvious line, which is The Care of the Teeth of Children. I am fully cognizant that this is but one part of the story, but surely it is along the right road.

Looking over Medical and Dental Education and practice, we see certain changes which clearly point in the direction of which I am speaking. Witness the tremendous changes within our own ranks during the past comparatively few years. Who will deny that the dentist of to-morrow will not only be better fitted, but will actually prefer to deal with the normal, rather than the abnormal, and hence will direct his efforts along that line? And what of the incalculably greater service which he will render!

Dr. George Vincent,* President of the Rockefeller Foundation, recently said:

"The physician of to-morrow will work with the normal rather than the pathological. He will have a greater knowledge of the effects upon the health of diet, exercise, mental attitudes, recreation and family and social life." What Dr. Vincent says of Medicine, I believe will be equally true of dentistry, for every enlightened student of dentistry sees that there is to-day a definite trend toward the goal of a better knowledge and better understanding, with its concomitant, a better service to the public.

I am interested in the present trend in educational circles, and this I believe to be significant. In the January, 1928, "Report of the Commission on Medical Education," we find much of value and especially so in statistics gathered. But one stands out under the caption: "Criticisms by Practitioners of their Medical Training," where we find the following:—

"To the inquiry, 'Do you consider your preparation in

* Journal of Dental Research, Vol. 6, No. 4, page 476.

medical school adequate?' " these answers were obtained:—

Percentage who considered training adequate:—

80–90%	{	Respiratory Infectious Disease Groups.
		Obstetrics.
		Minor Medical Complaints.
		Minor Surgery.
		Gastro-Intestinal Diseases.
		Children's Diseases.
70–80%	{	General Medical Diseases.
		Infant Feeding.
		Contagious Diseases.
		Surgical Emergencies.
Below 70%	{	Functional Nervous Disorders.
		Nutritional Disorders.
		Eye and Ear Diseases.
		Orthopedic Diseases.

From these it is apparent that attention is being paid in larger part to immediate and reparative needs, which of course is essential. But listed in the two latter groups are those conditions which, if properly handled, go far into the field of prevention. Let us see that it is done in both professions, Medicine and Dentistry.

But now in our present practice two things appear essential; first, we must create a positively preventive atmosphere—we must think and talk in terms of prevention, thus forcing ourselves into a preventive effort in all that we do, but better still, this atmosphere will direct our teachers and younger men who have this new learning to think and do, where we cannot. Out of it, surely, will come the ideal for which we seek.

The second point which I would make is that in practice we must take more and better care of the child—herein lies the true field of prevention. And thus we show our love for our children both socially and scientifically.

Having established, now, the thesis of prevention and the principle of Children's Dentistry, let us see what we might do.

The first essential is to have a rational concept of health, which may be defined as, "That condition which renders an individual fit to live most and serve best." This then becomes the standard toward which to work, and for our thought we need only add the adjective dental and we have "dental health."

Pages have been written upon, and we might go into lengthy review and discussion over, such subjects as: the Mother-to-be; Nourishment of Mother and Child; Fibrous Food; Soft Food; Vitamines; Oral Hygiene, and scores of others, but just now, I do choose to take you on a picture excursion through some of the things which I think and do, and know to be of real value in the care of children's teeth, first the deciduous and later the permanent dentition, both of which are manifestly pertinent to Preventive Dentistry.

Keeping Fit for the Practice of Dentistry

E. H. LYMAN, SANTA BARBARA.



ALTHOUGH the calling of the dentist is physically a hard one, to say nothing of the mental strain, there is but little literature on keeping physically fit by a certain course of life. The author seeks to prescribe something of the sort. Of late years many dentists have found golf of decisive value, despite the fact that it must follow hours of standing, but in his opinion it is too mild a form of exercise unless something is added to it. He had so much trouble with what he regarded as an occupational neuritis of the right shoulder, hand and arm (despite removal of tonsils and devitalized teeth) that he was forced to take a course of Swedish movements with massage and was completely relieved so that now he keeps fit with golf and mild calisthenics which serve to strengthen the back muscles. He describes his exercises in detail. In this connection posture must be mentioned and a dentist must learn how to stand to best advantage. Many robust men fail to stand properly and the work of the dentist is such that a correct stance will often be impossible. A vigorous muscular system will largely offset a poor stance. When sitting, the dentist can at least learn to sit up properly. In late life many symptoms in connection with the muscles are looked on as due to senescence, but will often be found to be remediable by muscular exercises.—*The Pacific Dental Gazette*.

Control of Variables in the Casting Process*

H. A. MAVES, D.D.S., MINNEAPOLIS.



TO receive an invitation from the British Columbia Dental Association Society to read a paper and clinic upon a subject so vital and important to Dentistry as the "Control of Variables in the Casting Process" is a keen pleasure, and obviously I feel greatly honoured.

The answer to Herbert Spencer's question, "What knowledge seems of most worth," is surely that which conserves the health, and the teeth play a fundamental part in this conservation.

Since our study, teaching and research—up to the present time—have been unable through preventive measures to check caries, it undoubtedly is obvious to all of us, and still imperative, that we, as a profession, continue our efforts to perfect our mechanical technique, for we are called up to deal with existing conditions, viz.: Ravages of Decay.

Therefore, an exposition on casting, and a practical demonstration, carries with it a deep significance and a keen responsibility—stimulating all of one's power and all of one's possibility to greater efforts at the touch of your personality.

To me, these opportunities, made possible through the splendid organization of the American Dental Association, are a distinct privilege and, obviously, I esteem them as such.

The clinics will be of wide appeal, for it is our sincere purpose to bring to your offices the most simple, practical, and economic technique that dentistry up to the present time is capable of suggesting or advancing, so far as we know. Too often, in the past, our knowledge of metallurgy shrinkage, and of expansion of waxes, investments, and golds has been largely ignored, and our castings fit fairly well in spite of us, rather than because of us.

I believe that we are all keenly aware of the outstanding fact that any new procedures which tend to depart from the old, however inadequate the old may be, are not usually met with much enthusiasm. On the contrary, it is the rule that

*Read before the July, 1928, meeting of the British Columbia Dental Association.

they are accepted slowly. It is not easy for the men who have been doing things in a certain way—teaching and advocating certain methods—to renounce them, much less to admit the fallacy in the things they have been teaching and executing.

We are all prone to meet progress reluctantly, especially if it demands that we cease doing things in the manner in which we have been doing them; and, as we grow older, we are likewise reluctant to take up the new, even though we are able to see its application and true advantages. This is all too human, and it is often difficult to accept the obvious; nevertheless, it is a great privilege to be connected with a progressive movement. We must develop and bring into action creative impulses, for dentistry has been challenged. In order to be a man, one must take a full step, even if obliged to stand alone, as has Dr. Meyer since 1908 when he dedicated his life to service for the upbuilding of the casting process.

I feel confident that courage, enthusiasm, and perseverance have brought final success to dental castings. Of all human attributes, an open mind, eagerly expectant of new discoveries and ready to remove convictions in the light of added knowledge and dispelled ignorance and misapprehensions, is the noblest, rarest, and most difficult to achieve.

I am of the opinion that this type of service will receive recognition, for we must have a conviction of our destiny. Therefore, to conserve time, I am going to confine my remarks to the final deductions, unifications, and results that Dr. Meyer and I have accomplished during the past five years, hoping to make them worthy of your careful and impartial consideration and investigation.

I trust that in their final analysis and applications we may epitomize our deductions, relative to the casting process, whereby standardization is in sight; and that we may be capable of rendering and discharging to suffering humanity a genuine and honest service, by perfecting our mechanical technique in reproducing wax patterns in gold, a technique which has suffered much criticism—and justly so—since Dr. Taggart so ably gave it to the profession in 1907. President Coolidge well states, "It is always very easy to promise everything. It is sometimes difficult to deliver anything."

The casting process is at present in a transitory stage and about to undergo far-reaching modifications, which will dis-

tinguish it radically from the casting process of the past. The imperfections in dental castings—most of them regarded popularly as perfections—are practically all products of the present generation. The transition from the past imperfect restorations to those nearly perfect is now apparently a simple matter.

The latest addition in the "control of variables" is the attempt of standardization of investments, wax expansion, wax elimination, drying of mould by electricity, and casting into a hot mould with 15 to 20 lbs. of pressure, thereby producing smooth velvet-like castings, inside and outside, linear measurements, and uniform results which can be easily slipped into place on porcelain or steel models without retouching, an extremely severe test. In working out the above standardized technique, we are for the most part indebted to a genuine creative personality.

In this swiftly moving, mechanical age, when the pressure of a button turns on lights, starts fans, sweeps floors, washes clothes, sets dynamos to humming, and speeds words across continents and oceans, we are sometimes prone to feel that an individual counts for little. At times, he seems to be a mere cog in a machine, a puppet at a play. He fills his little day with fuss and furore and passes off the stage. Fortunately, no one is indispensable. It would be a sorry world if things went awry when individuals ceased to function. Others fill the vacant places and humanity moves on.

Despite the vast array of mechanism in the modern world, one comes every now and then upon such clear instances of personal influences, of creative individualism, as to renew one's belief that behind apparent mechanism is a personal influence and guidance. Instances of this kind, I found in Dr. Taggart, and Dr. F. S. Meyer, of Minneapolis, who has kindly consented to follow up my paper with a movie showing the *tech*.

Wax expands on heating and contracts on cooling. Those are facts we all know. This expansion or contraction amounts to about one-tenth of one per cent. for every five degrees change of temperature of the wax, more or less, depending upon the wax used. Those changes we cannot disregard, if we wish to employ the material to our best advantage in our work.

Plaster of Paris, we are told by Dr. Harder, of the University of Minnesota, in the December, 1926, issue of the

Dental Cosmos, expands slightly on heating, but contracts from its original volume—sometimes as much as one per cent. upon being cooled after it has been brought to an excessive heat. Since Plaster of Paris is an important ingredient in all our investment compounds, those also are facts that we cannot disregard.

All alloys of gold in our use shrink as they pass from the molten to the solid state. The shrinkage is about one and one-half per cent., more or less, depending upon the alloy used. This is still another fact that we must consider if we are seeking the best results in our work.

All the above facts have been disregarded by the majority in the casting process for the last twenty years. And what have been the results? We all know: large inlays and crowns that can never be properly seated; wide open margins that harbor decay when the cement has washed out; uncovered gingival margins due to mesio-distal shrinkage; compression of the fibrillae of the dentine, causing soreness of the tooth and often death of the pulp; bucco-lingual expansion of the tooth, often causing fracture of the buccal or lingual cusp; and all of the annoyance and trouble that goes with trying to fit round pegs into square holes.

Step by step, we have worked out a technique in which we can utilize to our advantage some of those factors or forces which have always worked to our disadvantage. But, in order that you may be able to understand the reasons for every step in this technique and in order that you may be able to make the best possible castings with the fewest failures, it will be necessary for me to enumerate certain fundamental principles that explain them in detail.

1. The thinner a wax model, the less the gold casting will be shrunk. As the gold passes from the molten to the solid state, it must reach a certain state of solidity before it is able to compress the investment and shrink in spite of it. The thinner the bulk of gold, the nearer to the solid state it must be before it can compress the investment and shrink in spite of it; and, consequently, the less shrinkage is registered between points that tend to bind. Conversely, the bulkier an inlay, the more it registers shrinkage between points that tend to bind.

2. The thinner the occlusal portion of an M.O.D. inlay, in proportion to the mesial and distal portions, the less shrinkage from mesial to distal will be registered. If the occlusal por-

tion is thin and the mesial and distal portions are bulky, the occlusal portion will begin to congeal and shrink before the mesial and distal portions. It will complete a great part of its shrinkage before the mesial and distal portions are hard enough to overcome the resistance of the investment. Hence the inlay will register less shrinkage from mesial to distal. The converse is true if the mesial and distal portions of the inlay are thin and the occlusal is bulky.

3. The more the wax model is chilled while held in position in the cavity, the less binding there will be in the cast gold inlay. When chilled, wax tends to shrink, but it cannot shrink where the shape of the cavity is such that the tooth prevents it from shrinkage.

In such a case there must be a rearrangement of the molecules of wax to conform to conditions, or an elastic tension is established with a tendency to contract when the model is removed, or both. The former takes place largely in the early stages of chilling, while the latter takes place more when the wax becomes fairly hard. That elastic tension is largely removed by softening the wax with a hot instrument some place between points that tend to bind.

If the chilling is carried far enough with a large wax model on a metal or a porcelain tooth, the wax will check when the tension becomes too great.

4. The warmer the investment when it sets, the more expanded will be the wax model. This expansion in turn compensates in a measure for the shrinkage of gold.

5. The larger the sprue hole, the longer it takes for the gold in it to congeal and the more gold can be fed through it before the gold casting passes the mushy stage; consequently, the denser the casting will be and the less shrinkage will register. This, I believe, is the main advantage of the centrifugal machine over the pressure machine.

6. The shorter the sprue hole, the longer the gold in it will remain molten, and, consequently, the more gold can be fed through it before it congeals. Hence, the less will be the shrinkage.

7. The better the ring fits the crucible former when using warm investment, the less the danger of distortion of the wax model. Theoretically, there should be no water or investment allowed to escape from the base of the ring, causing a settling of the investment, nor any movement between the ring

and the crucible-former in handling. This is best prevented by a ring fitting into a groove of beeswax on the crucible-former and fitting so closely that the crucible-former can be picked up by taking hold of the ring.

8. The thicker the investment when mixed, the denser and harder it will be and the longer it will resist the pressure of the cast gold as it passes from the molten to the solid state. Hence, the less will be the shrinkage registered in the cast gold inlay between two points that tend to bind.

9. The more plaster content in the investment, the harder it will be and the more it will resist the pressure of the congealing gold as it shrinks. Hence, the less will be the shrinkage.

10. The less heat applied to the mould when eliminating the wax and the moisture, the harder and denser it will be and the more it will resist the pressure of the congealing gold; likewise, the less will be the shrinkage of the gold and the smoother will be the finished casting.

The fundamental principle that the harder investments of a higher plaster content cannot be heated to a high degree without destroying their life and resisting qualities, causes a critical stage in the wax eliminations.

With large gold castings it is very difficult to eliminate all the wax without danger of overheating the plaster.

The percentage of plaster in the mould is not always the same, nor the amount of wax to be eliminated, nor the gas pressure. A great share of this difficulty can be overcome by eliminating most of the wax, or all the wax, before subjecting the mould to the flame, and by bringing the mould to the same point of saturation with moisture for all castings. This is done by a very simple device consisting of a small receptacle containing water sealed in by the base of the mould and so arranged that the water when heated must be forced through the mould, carrying the wax with it.

11. The less foreign matter which may be incorporated in the wax that remains in the mould, the smoother will be the casting. If the wax is forced out through the sprue hole in a softened mass, without being allowed to soak into the investment, all particles in the wax which might be left as residue in the carbonization are likely to be carried out with it.

12. The denser and harder the investment, the more pressure is necessary to force the air out of the mould and the

gold into it. Here is where the pressure machines have the advantage over the centrifugal.

13. The denser and harder the mould, the more pressure it will stand without injury in casting against it.

14. The more pressure that can be used in casting, the more gold can be fed into the mould while the gold is congealing and, consequently, the less will be the shrinkage.

15. The larger the button of excess gold in proportion to the size of the castings, the longer it will remain molten. Hence the more gold will be fed into the mould before the casting congeals and the less will be the shrinkage.

16. The sooner the gold is cast after being brought to a state of fluidity, the smoother will be the casting and the better will be the condition of the excess gold for future casting.

17. The lower the karat of gold, the lower the temperature at the melting point is likely to be and, consequently, the less will be the shrinkage.

18. The less the inlay binds, or compresses, the fibrillæ of the dentine, the less the danger of fracture of the tooth, soreness, or death of pulp.

All these fundamental principles could be discussed at length, but since most of them were discussed in our paper published in the *Dental Cosmos* of February, 1926, and they all constitute common knowledge in a condensed form, it will not be necessary to do so.

Briefly, our technique for investing a wax model and eliminating the wax and the moisture from the mould is as follows:

Fill the groove on the crucible former with beeswax. Then insert a little beeswax into the sprue hole and insert the sprue supporting the wax model. This will prevent the wax model from moving when being painted with investment.

Place about a cubic inch of Meyer & Maves' investment at the right end of a large glass slab. Fill large end of Taggart Scales with Taggart investment and balance with warm water. Now note this very carefully: if the wax model to be invested is for a full crown, use the water in the bottle in the wax expander at about one hundred and fifty degrees Fahrenheit. If the wax model is for a bulky M.O.D. inlay, dilute the water to about one hundred and forty degrees. If it is for a thin M.O.D. molar inlay, an M.O.D. inlay for bicuspid, and M.O. or a D.O. any small inlay or a three-quarter crown, do not use

water over one hundred fifteen or one hundred twenty degrees Fahrenheit.

Make the mix in the small bowl fitted to the wax expander. Stir with a spatula enough to see that the mix is of the right consistency, a heavy cream, and complete the mixing in the recess provided for the bowl in the wax expander. Leave the whipmixer in the bowl until the wax model has been covered with the inner investment. From a water syringe, place a quantity of water on the glass slab covering a space about the size of a dollar or a little more. With a spatula make a mix of water and Meyer & Maves' investment of such consistency that it can be piled up fairly high without flowing. Draw off about a third of this and add to it more investment powder until it is as heavy as you can conveniently paint on your wax model. After painting a little of this on the cavity side of the wax model, rasp the crucible former with a file. Paint on some more of the heavy investment and rasp some more. This causes the heavier particles of the mix to settle, producing a dense surface next to the wax model. It also causes the bubbles and water to rise.

Then complete painting the wax model with the thinner inner mix, covering it to the thickness of about one-sixteenth to one-eighth of an inch, or a little more, and fill in clear down to the crucible former.

Place the warm ring taken from the wax expander into the groove on the crucible former with a rotary motion. The bees-wax in the groove will seal the joint.

Make a couple of turns of the whipmixer and pour the outer investment. Note this carefully: if the invested model is for a crown, place it on the grate in the wax expander. If it is for a bulky M.O.D. molar inlay, place it on another ring in the wax expander. If it is for smaller inlays or a three-quarter crown, place it on top of another ring in the wax expander, with the door slightly open, or on the top of the wax expander. Always remember: the thinner the wax pattern, the less expansion is necessary. This is especially true with partial veneer crowns.

Allow to set about forty minutes before eliminating the wax and the moisture. I time this with an x-ray timer.

When set, remove the mould from the wax expander and level off the closed end. Remove the crucible former and sprue. See that the rubber washer is in place in the lower end

of the mould compartment of the wax eliminating boiler. Fill the boiler with warm water and place the mould with sprue end up in the upper compartment. Hold the mould tightly against the rubber washer and empty out all surplus water. Screw on the top part of the boiler so it holds the mould tightly in position against the rubber washer. Place the boiler in the electric eliminator, or any other eliminator serving the same purpose, and leave until the water boils and no more wax emerges from the sprue hole. Then remove from the electric eliminator and allow the water to continue to boil for a minute or so.

The whole eliminator process for wax should not take over five or six minutes.

Turn the boiler upside down and cool under tap water. Remove the mould and place it in the electric eliminator with the sprue hole up. If a full crown of a three-quarter molar crown is to be cast, leave the mould in the eliminator until all the moisture has disappeared from the sprue hole, as shown by subjecting the open end of the mould to a mirror. If the crown is exceptionally long, leave a minute or so longer.

There is good scientific reason for this procedure. I believe that most dentists have cast crowns when flaw holes would appear in the occlusal portion. Close analysis of this will explain the reason. When eliminating either the wax by the carbonization method, or the moisture alone by our method, it takes longer for the heat to reach any other part of the mould. It follows, therefore, that if any of the wax or moisture in the mould fails to be eliminated, the failure will be at the end of this core or on the inside of the occlusal portion of the crown. When the molten gold comes in contact with the remaining wax or moisture, there is a sudden expansion of gas produced by the heat from the molten gold, causing a hollowing out of the casting and sometimes a hole through the occlusal.

Practice has shown by lengthening the time of elimination, in case you are to cast a crown, you will (?) to a large extent, obviate the above trouble. If an inlay is to be cast, remove the mould from the eliminator while still a quickly disappearing cloud appears on the mirror when placed against the open end of the mould.

The elimination of the moisture should take from sixteen to twenty minutes, varying slightly with a slight change of tem-

perature of the eliminator and with the size and shape of the wax pattern.

Before casting, place the mould in the wax expander for one to three minutes to allow any trace of smoke or vapor which may be invisible, to escape.

If this process is carried out carefully, you can cast an M.O.D. molar inlay or a full veneer crown, smooth inside and outside, that will go to place with finger pressure on a porcelain or steel model.

I wish to take this opportunity of expressing to Dr. Meyer my sincere appreciation and thanks for his worthy and timely research relative to the perfection and standardization of the technique in the casting process. I feel that the profession, also, owes him an everlasting debt of gratitude and appreciation. Roosevelt well said, "Every man owes some of his time to the upbuilding of the profession to which he belongs," and this is my particular reason for attempting to further this masterful and timely research.

Revolution is the demand of evolution. In this age the wheels of progress are turning rapidly. To-day passes and the morrow comes with added problems and new designs. The highway leading toward the goal is open. It can truly be said that dentistry is in step with the procession.

Those of you who are interested, will be privileged, at our group clinic to-morrow morning, to meet Dr. Meyer personally and watch him carry to completion a number of practical demonstrations on porcelain teeth, including waxing, expanding, investing, wax elimination, drying of mould, and casting.

Drs. Sundby and Goering of Duluth will demonstrate on castings for natural and porcelain teeth, including inlays and three-quarter veneers of full crowns; and I shall demonstrate expansion and contraction of waxes and golds, showing final results of M.O.D. inlays and partial veneers, and full crowns upon porcelain, steel, and natural teeth.

In conclusion, I wish to suggest the perpetuation of the name of Dr. William Taggart by our profession for giving it the casting process, whose perfection is in sight, for the welfare of humanity and the advancement of dentistry. Obviously, a strong desire for this perfection is now felt by earnest workers in the profession, and the time is noteworthy because of Dr. Taggart. "Yet hath my night of life some memory; my wasting lamps some fading glimmer left." Such an ideal was

accomplished when he composed the casting process out of the inner consciousness of inspired dentistry, and little tampering has been done up to the present time with its sovereignty.

The vista continues to widen, and new problems, new theories, new viewpoints, loom large before us.

In completing one discovery, we never fail to get an imperfect knowledge of others, of which we could have no idea before, so that we cannot solve one doubt without creating new ones.

Preparation of the Patient

CHARLES J. WELLS, M.D., SYRACUSE.



IN the current issue of "Anæsthesia and Analgesia," Dr. Wells' paper upon the subject of "Preparation of the Patient," contains the following section upon the necessity for oral prophylaxis:

About the first thing to be done in the preparation of the patient is the proper prophylaxis of the mouth. The average hospital does not pay enough attention to this important feature. Infected tonsils should first be removed. This should be done before the main operation, and not with it. Complicated and unnecessarily prolonged operations are not to the best interest of the patient.

Decayed teeth should be removed, filled, or treated as the case may be, to rid the patient of this focal infection. Dental service improves the general health, and by placing the mouth in a less septic condition, makes the convalescence less liable for dental and perhaps pulmonary complications.

Heavily furred tongue and foul breath should indicate special attention to the digestive tract.

Whether artificial teeth should be removed before the operation is always a question for the anæsthetist to decide. Small loose bridge work should always be removed, but large plates are sometimes best left *in situ*, as they keep the face filled out and thus prevent interference with respiration, and also prevent the escape of anæsthetic gases. When it is necessary to remove them, a suitable airway is a great aid in keeping the respiratory tract free.

When examining the mouth, the anæsthetist should observe the best location for a mouth gag, should its later introduction become necessary.

Food—the Most Important Factor in the Family Budget



THE daily activities of our bodies necessitates the continuous expenditure of energy. This daily expenditure of energy is dependent upon the food we eat. This food must be of such a character as to not only supply heat and energy, but also growth and repair and, furthermore, to stimulate and regulate body processes.

These can only be secured by a properly balanced diet, that is a diet containing not only carbohydrates, protein, fats and mineral salts, such as calcium, phosphorus and iron, but also all of the vitamins or accessory food factors.

FOOD IN THE FAMILY BUDGET.

Inasmuch as practically all of the family budgets that have been prepared provide that 50 per cent. be expended in food, a proper knowledge of food and food values and the proper methods of selecting and cooking foods is obviously essential. It is also essential that we have an intelligent understanding of what constitutes a balanced diet.

We have been hearing much in recent years of malnutrition and the under-nourished and under-developed child. Our investigations in this connection revealed the fact that this under-nutrition and under-development was not as much the result of insufficient food as it was of improper food.

One great difficulty that has confronted us in our educational campaign on food, food values and nutrition, is in eliminating all technical terms, inasmuch as a proper knowledge of food and food values is necessarily based on a knowledge of chemistry, physiology and biological chemistry. There are, however, a few general facts that, if carefully carried out, will materially aid in insuring a properly balanced diet.

In the first place, spend at least as much money for milk as for meat, and as much for vegetables and fruit as for meat; in other words, spend double the amount on milk, vegetables and fruit that you do on meat.

We hope that our readers will mark and inwardly digest this advice. It is extremely important, inasmuch as the people of this continent are heavy meat-eaters; the vast majority of us eat double as much meat as we should. This is more par-

ticularly true of those who have reached full adolescence and as regards those who have passed forty years of age, they should reduce the daily consumption of meat more than one-half.

It is important to keep careful record of the foods purchased week by week for future reference, and also so that the public health nurse or the social welfare visitor may go over these items with the mother and, where necessary, make suggestions.

A knowledge of food values and what constitutes a balanced diet should occupy a prominent place in the education of every child, not only in the primary schools, but in our colleges, collegiate institutes and also in the university. This is necessary in order that the facts may become permanently impressed on the minds of our boys and girls and our young men and young women and, in addition to this, every girl should be taught how to select and cook the various foods, as the proper cooking of the food very materially aids in stimulating the appetite and in the digesting of the food.

OUR PRESENT CONCEPTION OF WHAT CONSTITUTES EFFICIENT NUTRITION.

In view of the fact that one-half of the family budget should be spent on food and that our physical fitness depends, for the most part, on the efficiency of our food supply, which must mean not only quantity and quality, but also the proper proportions so as to constitute what is known as a properly balanced diet, it must be apparent that we cannot exercise too much care in securing a proper knowledge of nutrition.

In order to do this, there are three points which we should carefully study, in order that we may have a full comprehension of their practical application:

- (1) What constitutes a balanced diet?
- (2) What do we mean by vitamins?
- (3) What do we mean by calories?

Let us endeavour, therefore, to get these fixed in our minds, but before doing so let us fully understand the fact that all the energy of our bodies is derived from the food we consume and the oxygen we inhale and the water we drink, the oxygen being essential to support the combustion, or the oxidation of the food in the cells of our body. The result of the

burning, or combustion of food is practically the same whether inside or outside our bodies, providing the food is of such a character as to undergo complete combustion and is easy of assimilation, and that we have an adequate supply of oxygen to support this combustion. The oxidation of the food in our body cells is closely allied in its result to the burning of fuel in a furnace, inasmuch as the quality of the fuel and the proper drafts, that is, an ample supply of oxygen and the choice of fuel (that is, food), in every case must depend on the amount of heat and energy required. In this respect, as in most others, nature's dictates are usually right.

For instance, a man in the lumber camp, during the winter weather, prefers fat pork to lean beef—in fact, he does not object to two or three inches thick of fat bacon, because this supplies such an ample quantity of heat and energy.

For instance, one pound of carbohydrates yields 1,880 calories of heat, and one pound of fats yields 4,220 calories; hence the wisdom of the lumberman's choice.

This, obviously, would not be a suitable diet for the man in the office or the man engaged in sedentary occupation.

Furthermore, when we are out on our holidays, fishing, rowing, paddling or tramping through the woods in the highlands of Ontario, taking ample physical exercise and getting an unlimited supply of oxygen, our food is burned up more quickly in our bodies, consequently we get hungry more quickly even after a substantial meal and we can digest or assimilate a much more substantial type of diet than we can when sitting in our offices from morning until night, getting a limited amount of exercise.

Therefore, in the choice of food, these facts must always be taken into consideration.

THE BALANCED DIET.

For many years it has been considered sufficient if our daily rations contained the necessary proportion of protein, carbohydrates, fats, inorganic salts and water, and that the quantity be such as to represent the necessary number of calories. In order that this may be the case, it has been considered necessary that we consume from three to four ounces of protein or muscle-building material, such as the various kinds of meat, eggs, milk, cheese, beans, etc., and approximately the same amount of fats, of which the principal

and most valuable is butter fat and, in addition to this, the fats of meat, more particularly beef, and about four times this quantity, or one pound of carbohydrates. The latter, together with the fats, produce the heat and energy required for our daily demands.

Carbohydrates consist of the various kinds of breakfast cereals, bread, vegetables, sugar and certain fruits.

VITAMINS OR ACCESSORY FOOD FACTORS.

These accessory food factors were named "vitamins" by Professor Casmir Funk, Director of the Research Laboratories of the London Hospital. "VITAMINS"—they are not a new food product, or even a new element in our food, but they play a most important role, not through their own potentiality, but rather through their stimulating, igniting or vitalizing properties as accessory food factors.

The importance of these accessory food factors has long since passed the experimental stage; their value has been fully demonstrated primarily by such men as Professor Hopkins, of Cambridge University; Casmir Funk, of the London Research Laboratories; Professor Drummond, Physiological Chemist of the University of London; Professor McCallum, of Hopkins; Sherman, of Columbia; and Osborne and Mendel, and many others on this continent, so that there is now a consensus of opinion amongst food experts and biological chemists as regards the absolute necessity for an efficient supply of these accessory food factors for proper physical development and maintenance of physical fitness.

The sources of these vitamins are such as to make the solution of this problem very simple. For instance, the principal source of all the vitamins is the leafy vegetables and, so far as infants and young children are concerned, milk constitutes in itself practically a balanced diet, inasmuch as it contains all four of these vitamins—particularly in the summer time, when the cattle are getting an amply supply of grass. It is always advisable, however, to have orange juice added to the infant's diet.

The articles, some one or more of which should enter into our daily diet, that contain the largest amount of these accessory food factors, are lettuce, spinach, cabbage, chard and beet tops, so that a developing child consuming a quart of milk a day, which every child should consume, together with

two or three leaves of lettuce in a salad, will have insured for him a reasonably safe supply of these vitamins.

In addition to these, cod liver oil holds first place as being the most plentiful source of vitamins A and D, which are the anti-ricketic and the anti-sterility vitamins. It has for some time been a source of amazement to many as to why cod liver oil should be so very rich in these vitamins that it is, in itself, the most valuable single protection that we have against the development of rickets, the next being cream and butter, plus the ultra-violet rays.

The source of the vitamin supply in the cod liver oil is a small plant, diatom, that grows on the surface of the sea or the ocean. These plants are consumed and digested by very small fish; these very small fish again in turn constitute the principal diet of larger fish, more particularly the herring, and these herring constitute the principal diet of the cod, hence, through the various channels, a cod gets its plentiful supply of vitamins A and D from the vegetable growth of the sea.

Let us try and bear in mind that it does not require any more money, only a little thinking, in order to secure for ourselves a perfectly balanced diet that will enable us to meet all the requirements and demands of our body.

Just what the future holds in connection with these accessory food factors it is impossible to say.—*Department of Public Health, Toronto.*

To Celebrate 25th Anniversary



DENTAL Congress is to be held in the Dental Faculty of the University of Montreal, on October 15, 16 and 17th, 1928, to celebrate the 25th Anniversary of the Foundation of the Faculty.

PROGRAMME.

Monday, October 15th—9 a.m., Registration; 10 to 12, Papers; 2 to 5, Clinics; 8 p.m., Papers.

Tuesday, October 16th—9 to 12, Papers; 2 to 5, Clinics; 7 p.m., Banquet.

Wednesday, October 17th—9 to 12, Papers; 2 to 5, Clinics; 8 p.m., Public Session, at which addresses will be delivered on Dental Hygiene.

Thursday, October 18th—Golf competition.

Better Teeth for Better Health

J. MENZIES CAMPBELL, F.R.S., L.D.S., D.D.S., GLASGOW, SCOTLAND.



It is not generally recognized that the teeth are an integral part of the body, that they are nourished by the blood, which nourishes the other organs and tissues and which derives all its nutriment from the food. It is, therefore, natural that if one should eat improper food, the health, and likewise the teeth, will suffer. It is possible to be grossly overfed, yet undernourished, if the diet should lack the elements essential to the well-being of the body. In fact, decay of the teeth should be recognized as a sign of decaying health, and immediate measures be taken to find the cause and its remedy.

"An ounce of prevention is worth a pound of cure." This proverb is particularly applicable to diseases of the teeth; prevention must begin before the child is born, and be continued with meticulous care throughout life; only thus can dental disease be outwitted. The preventive measures necessary to retain the teeth in good condition are (1) proper diet; (2) proper exercise of the teeth and gums; (3) thorough cleanliness of the teeth; (4) regular visits to the dentist, and (5) all other measures necessary for the maintenance of good health.

ESSENTIAL DIET REQUIREMENTS.

A balanced diet plays an important part in the preservation of sound teeth and gums. The chief faults of modern diets are (1) lack of necessary salts; (2) lack of vitamins; (3) too soft; (4) too refined, and (5) too concentrated. These must be rectified by the eating of vegetables, raw or conservatively cooked, plenty of raw ripe fruit; substituting hard for such soft foods as milk puddings, new bread, etc., the use of wholemeal in preference to white flour, and the drinking of fresh milk, if healthy teeth be the goal.

The expectant mother must partake of a proper diet in order to lay a sound foundation for the child's teeth, of which all the temporary and many of the permanent are, at birth, partially developed in the jaws. She should consume plenty of milk, eggs, raw fruit and vegetables, and wholemeal bread;

only thus can she provide the lime necessary for the proper formation of strong healthy teeth. If this be done, not only will the child's teeth be properly developed, but her own will be conserved—the adage “a tooth for every child” is a myth, if plenty of lime-producing foods be incorporated with the diet. If this be not done, Nature will extract the lime from the mother's teeth, and they will become not only painful, but will decay.

“Rub or rust” is one of Nature's inexorable laws, which applies with peculiar force to the teeth. They must, immediately on eruption, and throughout life, be exercised with an abundance of hard foods. The chewing of these exercises the teeth, and, by inducing an increased flow of blood, helps to keep them in good condition, while the resultant augmented flow of saliva not only aids digestion, but also helps to keep the mouth clean. Breast-feeding is preferable to bottle-feeding because it compels more vigorous action on the part of the baby's jaws and muscles.

HOW TO BRUSH.

Cleanliness of the mouth and teeth is achieved by proper brushing; owing to modern diets, even those with perfect teeth cannot neglect this important ritual. The upper teeth should always be brushed from the gums downwards, and the lowers from the gums upwards, while, in my opinion, a good tooth-powder is preferable to a toothpaste, as the former is more successful in removing food particles. A mouthwash of lemon juice and water (equal parts) is both cleansing and beneficial to the teeth and gums. The teeth should be brushed night and morning and, when possible, after every meal; at the same time, the precaution should always be taken of finishing all meals with a “tooth-cleansing” food, the best of these being hard fruits and crisp raw vegetables.

The dentist should be visited each six months, when the teeth can be polished and any small cavities filled (the smaller the cavity, the less the suffering). One should not wait till pain be experienced before seeking dental aid. The person who cares for his or her teeth will seldom have toothache, which is, in reality, Nature's warning that, unless aid be sought at its onset, irretrievable damage may be done. Sometimes it happens that a person experiences pain, which, after recurring, disappears, and he or she thinks that all is well;

but he or she is, in reality, living in a fool's paradise. The pain ceases because the nerve has died, and greater havoc is now proceeding in and around the tooth, with the consequence that later an abscess (gumboil), or some such attendant evil, may arise, with dire constitutional effects.

Unfortunately, the vast majority of people to-day already have had some degree of dental disease, but if as many as possible of the above measures be adopted, this can be considerably lessened. Should the decay be too far advanced, the teeth must be extracted—better an empty house than a bad tenant—and artificial substitutes inserted. These can be æsthetic as well as serviceable, but at best are merely crutches, and, although infinitely better than diseased teeth, they cannot possibly be as good as Nature's product.

Much alarming and irrelevant matter has been written regarding pyorrhœa, which is in reality a poisoning of the body (toxæmia), arising from the consumption of an undue proportion of meat, starch and sugar and too little fresh fruits and vegetables. If this disease be not too far advanced, it can be cured by rational modes of living combined with treatment of the teeth.—*New Health*, September, 1928.

Two-Day Clinic at London

T has been arranged that the London Dental Society will hold a two-day clinic under the Extramural Plan of the University of Toronto for all dentists of Western Ontario, on Friday, 16th and 17th November, 1928.

The subject chosen has been "A Discussion and Demonstration of the Principles Underlying the Full Denture Problem," and is to be presented by Dr. Felix A. French, of Ottawa. Dr. French will also give clinics carrying a full upper and lower case through as far as time will permit, and also upon the re-mounting of recently finished dentures for the purpose of studying and correcting possible errors in occlusion.

It is hoped that the dentists of Western Ontario will avail themselves of this unusual opportunity and accept the invitation of the London Dental Society to join with them in this two day prosthetic clinic.

Dental Service for the Byrd Antarctic Expedition



COMMANDER BYRD, the apostle of preparedness, included in the arrangements for his scientific expedition of exploration to the Antarctic regions, the complete medical and dental examination of every member of the party. His entire personnel has been made physically fit to withstand the hardships of perhaps the most hazardous adventure ever undertaken by a group of men. Complete dental charting of each man, X-ray diagnosis, together with thorough operative work and treatment, so amazed and gratified the Commander that he expressed the opinion that no exploring expedition of the future will go forward without a similar checkup of its personnel. Dr. Clyde A. Nelson, of the Caulk Research Laboratories, did all of the operative work in a special clinic established in the Fifth Avenue Building, New York.

Arrangements have been made for Dr. Nelson to meet each of the two ships en route home in 1930 and make a complete examination of each man's mouth as a check-up in the interest of science. The follow-up examination is sure to unfold some valuable scientific data for the dental profession.

EXPRESSION OF APPRECIATION.

BYRD ANTARCTIC EXPEDITION

Executive Office

Suite 340 Biltmore Hotel, New York City.

August 15, 1928.

Dr. G. Layton Grier, President
The L. D. Caulk Company,
Milford, Delaware.

Dear Mr. Grier:

May I take this opportunity to tell you how deeply indebted I am to you for the splendid condition in which you have put the mouths and teeth of every member of our Antarctic Expeditionary personnel, through the facilities of The L. D. Caulk Company, of which you are President, and the clinic to facilitate the work which you set up in the Fifth Avenue Building here in New York. That you, personally, acting in the capacity of Chief Dental Consultant to the Expedition, gave so much of your time to supervise the details, accounts very largely for the success of the work.

When the proposal was made that the Byrd Antarctic Expedition be the first of its kind to go forward on such a mission with the mouth and teeth of every member in the best possible physical condition, I did not realize the scope of the undertaking, nor did I anticipate the splendid results that have been attained.

I submitted myself, as has every one of my shipmates, to your able assistants, and underwent a complete radiographic examination. I understand these radiograms revealed many abscessed conditions quite unknown to the men themselves, which, if left

uncorrected would surely have resulted in much distress under the severe climate at the bottom of the world.

The fact that our diet in the Antarctic calls for considerable coarse food, it is obvious that we should all have strong teeth and healthy gums, also some of us might develop scurvy with its loosened teeth and inflamed tissues. Happily, I can leave with a feeling that we shall not experience this disease, nor that of dreaded trench mouth, since your co-oworkers, through their skillful work, have built up a resistance of the teeth and tissues to stand off the inroads of infection.

I have studied the reports you have made of each man and observe you have done some work on each, from simple fillings and the treatment of the tissues to the making of complete plates. I understand one man required as many as twenty-two fillings.

Let me again take the opportunity to thank you and The L. D. Caulk Company for this remarkable piece of scientific dental work which you have done as your contribution to our expedition, and in particular I want to thank Dr. Clyde A. Nelson, dental surgeon in charge of the operative work, whose exceptional skill and care, and the earnest and thorough manner in which he handled each case, won our highest esteem and commendation, Dr. Theodore Blum, oral surgeon; Dr. Paul Poetschke, consulting chemist, and Miss Lucille Zimmerman, dental hygienist.

I can also assure you that every man of the Expedition now has an exceptionally high regard for modern dentistry, and I join them in again thanking you for this splendid piece of co-operation in our behalf.

With kindest personal regards,

Very cordially yours,

R. E. BYRD.

Canadian Dental Hygiene Council



At the last meeting of the Executive Committee it was decided that a campaign, similar to the one conducted in Saskatchewan last year, be carried on in Manitoba, and \$3,000 was voted for this purpose. The Provincial Dental Society have requested such a campaign, and the support of the Government and numerous organizations have been assured.

Dr. Thomson will go to Manitoba about October 22nd to arrange preliminary organizations, and the Campaign will probably start about February.

GOVERNMENT GRANT.

The matter of a grant from the Dominion Government next year was discussed, and it was decided that representations should be made at an early date. Dr. Thomson and Dr. Trotter were authorized to go to Ottawa and take up the matter with Dr. Amyot, and possibly members of the Cabinet.

Mr. N. L. Burnette, Ottawa, was appointed a member of the Executive Committee.

The chairman, Dr. W. C. Trotter, was asked to attend the 25th anniversary of the Faculty of Dentistry of the University of Montreal as representative of the Council.

Orthodontia Treatment and Retention*

A. THORNTON TAYLOR, B.D.S., SYDNEY.

INTRODUCTION.—As a preface to my paper, I quote from Gertrude Atherton: "Our success will lie in adapting to our particular needs such principles as have been tried and not found wanting; our failure, in visionary experiments."

My quotation forms a fitting text for the few remarks on treatment and retention that I am to-day offering to you, and I shall confine myself, as far as possible, to only those principles which have been proved by virtue of studied consideration and sound practical application.

I propose to outline the most essential principles of treatment, and, as well, offer some thoughts on the theoretical aspect of the vexing question of retention.

I shall take it for granted that you are seized with the importance of a thorough and accurate diagnosis, and that your prime aim in treatment shall be the removal of the cause or causes, that you have perceived abnormal muscle tone and perversion of function of dependent tissues and structures around the denture, and as well that you have impressed upon the patient and parents the necessity for a full and hearty co-operation in the elimination of all such disturbing conditions.

With these most important phases of our work accomplished, or at least having been given most careful thought, we are at liberty to turn our attention to the immediate demands of treatment. However, before considering the more technical phases, there are some theoretical aspects which must be reviewed.

The modern conception of orthodontia from an orthodontic standpoint is reconstruction of bone in harmony with the forces to which it is subjected. The teeth are merely symptoms of force perversion or mal-development, and but the means by which we transmit *directed* stimulation to the underlying tissue. With this thought well in mind, we may now consider specifically our aims in treatment.

Aims.—(1) Primarily, as I have said, we must remove

* Read before the Sixth Australian Dental Congress, Melbourne, August, 1927, and published by courtesy of The Dental Science Journal of Australia.

the cause or causes. (2) We must establish normal occlusion. (3) We must effect bony reconstruction. (4) Muscles and associated tissues of the denture, to the best of our ability, must be normalized. (5) Correct functioning of the denture in its manifold phases must be established.

In other words, the chief requisite is balance, or harmony with the line of occlusion—that beautifully conceived thought of that great philosopher and teacher Edward H. Angle. Simply stated, this means the establishment of a condition of occlusion to which all dental stresses are so harmonized as to be in perfect co-relation and balance according to the type, the mechanics, and the physiology of each particular denture.

Method.—With a clear conception of the end in view, we are now in a position to consider, firstly, the *method* to be used to realize our object, and secondly, the *means* by which we intend to obtain the desired result.

In general terms, we must so plan our treatment as to lead to a gradual unfolding of all of the perversions of the denture—as it were, to unravel the knot, so that all the abnormalities of the denture shall be corrected at as nearly the same time as possible; that is, we must simultaneously consider proper arch-form and inter-relation, correct positions of the individual teeth in relation to each other and to their respective arch, and correct functioning of all co-related and dependent tissues of face, mouth, nose and throat.

So not only must we immediately consider the big movements, such as arch form and inter-relation, etc., but we should straightway attend to the little things—the small rotations, the abnormal contacts and incorrect axial inclinations. *Immediate* attention should be given to these details, so often seen only towards close of treatment, and so often slighted altogether.

When one understands fully the significance and the importance of balances in the denture, one admits the advisability of establishing normal relations of all its components as nearly simultaneously as our ability allows. One must realize that the most successful cases are those wherein the mechanics of the denture are most nearly correct, therefore the necessity for close attention to detail throughout all stages of treatment is clearly indicated.

Now there are several important things that should be considered at each visit of the patient. One should ascertain

carefully the molar positions—those great landmarks of arch relation; cuspid positions, rotations and all contacts should be closely scrutinized. And last, but most important, the form of the arches should be studied on every occasion. This is one of the most essential phases of treatment, for the ideal arch should be visualized before commencing treatment and every effort made to work continuously and certainly towards that ideal. One should never lose sight of that conception of form, and one saves weeks in treatment if the form of the metal arch is kept ahead of the movement of the teeth—they should never be allowed to catch up with an imperfectly formed arch, but be progressively moved towards their proper and final position.

In conjunction with our mechanical efforts, we must attempt early the correction of muscle perversion and the establishment of normal muscle tone; we must insist on the correct functioning of the teeth in mastication and emphasize the importance of proper respiration. Also we must help the patient in his endeavours to overcome pressure habits, such as lip habits, thumb-sucking, or sleeping or leaning with undue weight on any portion of the lower face.

Principles of Treatment.—With this outline of general method before us, it is fitting that before studying the more technical aspect of our subject, we consider some of those principles of treatment as are necessary to success. Therefore, I submit the following essential and practical laws in orthodontic treatment.

Firstly, function must be maintained.

Normal functioning of all the components of the denture must, as far as possible, be maintained at all times during treatment—this but accords with reason, and is supported by clinical and histological findings. The maximum cellular regeneration and reaction occurs when the tooth is held down firmly in its socket rather than being allowed to rise. If held down, all of the force, be it functional or artificial, must be used in regeneration.

On this premise, a chewing exercise is exceedingly beneficial in treatment, as it stimulates blood flow, relieves capillary compression and establishes tonicity of cells and tissues concerned.

Secondly, keep the cells physiologically busy.

This principle touches the question of speed, and we might

now well consider the meaning of physiological speed, which we deem to be the ideal movement to adopt in orthodontic operations.

We may define it as that speed which is as rapid as possible, consistent with the necessary physiological changes in the tissues due to orthodontic stimulation, or, in other words, that which produces no trauma, no pain and no inflammation, but which coincides with the ability of the tissue to react to the artificial stimulation. This, of course, varies according to the age of the patient, their physical condition, and the tone of the tissues concerned in tooth movement.

Thirdly, avoid jiggling or intermittent pressure.

Pain in tooth movement is caused by inflammation incited or kept active by the too frequent application and relinquishment of force. A continuation of intermittent pressure leads to root absorptions, owing to the prolonged cellular disturbance caused by varied and antagonizing stimulations.

One must realize that gentle, constant pressure, with the minimum interruption, is in closest accord with the necessary stimulation of the cellular elements that function in bone absorption and reorganization.

Fourthly, study the indications for periods of activity and rest during the whole course of treatment.

In very young dentures presenting incipient malocclusions, such a course allows nature an opportunity to continue normal development following a short period of artificial stimulation.

In older dentures, the period of rest allows for growth and development in the alveolar process and facial bones subsequent to the comparatively rapid movement of the teeth.

Lastly, force is never lost to living tissue.

This truth suffices to sound a warning in working with any appliance, and illustrates the need for an absolute mastery of the necessary technique, a very careful application of force, particularly torques, with their manifold reactions, and, most important, a painstaking attention to detail.

Appliances.—Now, having studied carefully the requisites of our cases, and decided upon the routine of treatment, we may turn our thoughts to the means, or the technique, by which we expect to obtain the desired result.

The requirements of an appliance are obvious, and need but scant mention. Efficiency, simplicity, delicacy, incon-

spicuousness, stability, ease in cleaning, asepsis, ease in application and operation are so well known as to need no comment.

However, present demands call for increased efficiency in the orthodontic appliance. Individual force control, both static and dynamic, must be available in any appliance we use. Modern tendencies in anchorage and tooth control require that we should carefully analyze our appliance to see that it will efficiently provide for all our needs, even in the most complicated cases.

It is now generally recognized that one must band teeth for anchorage, more so than for movement, therefore one may accept the rule to band more teeth that are normally placed than those that need to be moved. Such procedure expedites treatment immensely, and lessens greatly the chances of cellular disturbance through instability of the appliance.

There must be no slack in any appliance, for adequate anchorage and efficient tooth control render simple the procuring of continuous and progressive cellular stimulation.

Time prevents us discussing the mechanics of treatment of the various classes and divisions of malocclusion, so we must generalize in regard to them. The treatment of each case is begun differently, but under the same guiding principles. Malocclusion is but the perversion from the normal in growth and function of all the various parts of the denture, so, as has already been said, the treatment of malocclusion consists in the restoration to normal balance of the forces governing the denture. This is effected through the reduction of the malocclusion and the reorganization of the alveolar process, bones, muscles and other tissues related to the teeth.

With this accomplished, mechanical retention would be unnecessary, but although cellular regeneration is well advanced, it is seldom that complete reorganization is effected before the close of active treatment.

However, there must be a stability of the forces of the denture before active treatment can safely be discontinued. Perfect balance, although desirable, is scarcely obtained until the dental tissues are free to function and become adjusted to their new directions of stress.

“One speaks of balance in the denture when all of the forces of occlusion are harmonized, when inclined occlusal planes, contact points, muscles—both external and internal,

peridental fibres and all other structures comprising the denture are normal in growth and function."

With a full comprehension of this thought, it is clear that this balance can only come after a period of retention or support for those tissues which have been reorganized during the treatment of the malocclusion.

Retention.—We now understand two distinct phases in passive treatment or retention.

The first period is that of support for the teeth moved, when, in accordance with the demands of occlusion, the normal re-arrangement of bony structure is taking place in all directions except that under the immediate influence of the retaining plate or mechanical fixture. This retainer should operate in one direction only, namely, that from which the tooth or teeth have been moved.

This makes necessary a second period of reorganization of structure, a period where the retainers are gradually being dispensed with. That portion of the alveolar process previously supported is thus permitted to undergo gradual rearrangement to enable it to be self-supporting in the direction from which the teeth have been moved. This latter phase is an extremely important period of retention, and when disregarded, as it often is, is a common cause of relapse.

While this bony reorganization is taking place, provided that the denture is operating normally, all its muscles and associated tissues are becoming fixed in their normal function, and equilibrium of forces should speedily be obtained.

Before closing we must consider several factors in retention which must be observed if permanent stability is to be maintained:—

- (1) The patient must have proper food, chew well and correctly, and swallow with the teeth closed.

- (2) Respiration must be normal.

- (3) Lip, tongue and cheek habits must not be recommenced.

- (4) No abnormal external pressure must be applied to the face.

- (5) All artificial restorations must be anatomically correct.

- (6) There must be normal axial stress on the teeth, otherwise they will tip into positions of malocclusion and again upset the balance of forces around the mouth.

In conclusion, I express my regret that I have had to discuss my subject so generally as perhaps to be vague. However, I

have presented some of the fundamentals of treatment, and trust that you may find help in those cases that come under your care.

There is one thing through this paper that I have attempted to make clear, and that is to answer the current misconceptions concerning speed in tooth movement, and show you that it is merely a greater efficiency, both in technique and method, that is responsible for the more expeditious treatment that is being performed by a section of present-day orthodontists.

Dental Psychology*

C. RANKIN, D.D.S., LONDON.



R. C. RANKIN is the author of an interesting and practical paper on Dental Psychology appearing in *The Dental Record* of last month. After dealing with general preliminary considerations, the entity of the subconscious, its impressionability and its suggestibility, the influence of mind on body, and applied psychology generally, the author proceeds to consider their application to dental practice, and says:

It has never been appreciated as in our time that the most important factor in therapeutics is the personality of the physician or surgeon. New nostrums have been introduced, made fashionable, lost their effect and been abandoned, but physicians in all ages, with even the crudest armamentarium, have succeeded in making people well. They have increased the patient's resistance, and given him the power to call up the reserves of his vitality, so that he has successfully passed a crisis. Even in these days of vaccines, sera, organo-therapy, the factor which counts most in the fight with disease for a patient's life is the personality of the physician or surgeon. Two men may attend the same patient, one fails to get a result, but the other by his personal influence can soothe the fears of the patient, allay his anxieties, make him conserve his vital forces, so that they are not needlessly dissipated in unnecessary work. This personal influence was in olden times spoken of as magnetism, which passed from the physician to the patient. "Virtue flowed from Him." The patient feels

*Paper read before the Liverpool and District Odontological Society, January, 1928.

that something has been added to his own powers, whereas in reality his own resistance has been stimulated, that is all. The healing power is within. An impressive personality is the key to success in all branches of medicine, although we cannot deny that technical skill is required as well. Charcot added much to our knowledge of nervous disease, yet his success was greatest with the psychoneuroses. Nervous patients who came to him were invited from the general waiting room into a small ante-room outside the consulting room, and in dim light awaited the summons of the physician himself. At the psychological moment the door opened, and the patient was called. He saw the great physician standing in a blaze of light. At once the neurotic was persuaded that here in this calm, gently-spoken man was the individual who had the strength and skill to heal. Suggestion played its part with extraordinary effect, for these people looked on the physician, expecting to be healed. The reputation of an eminent physician or surgeon or dental surgeon predisposes the patient's mind towards cure before the consultation, and the impression of strength, calmness, confidence and healing power made during the interview, calls out the patient's latent reserve of energy, with most gratifying results. So the surgeon-dentist who makes the most of his personality need have no fear of success in all its forms. His personal appearance, his calm confidence, his clear but quiet tone of speaking, the impression he gives of being a master of his calling, the arrangement of his instruments, his scrupulous surgical cleanliness, his sympathy yet his decisiveness, are all grasped in a few brief seconds during which the patient makes up his mind that "this is just the man I am looking for. I have perfect confidence in him."

The suffering in the world is vastly disproportionate to the incidence of disease, and this applies especially to the sphere of the odontologist. Many people who have any slight disease suffer a great deal, because they are hypersensitive, because they brood over it, and because they do not understand the pathological condition underlying. We can help patients of this kind. There must be impressed on the mind that the surgeon thoroughly understands the condition, that there is complete sympathy, that the relationship between you and your patient is personal, that you do not merely look upon him as a "case." There are dental surgeons, general surgeons and physicians who have the knack of making their patients believe

that their whole resources are being put at the service of the individual, and these men have tremendous influence.

Now let us turn for a little to the psychology of the patient. The dominant idea in the mind of the average man who comes into your waiting room is fear of pain of the extraction, or the filling, although he may be suffering agonies from a carious tooth at the moment of his entrance. Indeed it is often sheer desperation that makes him seek dental assistance at all. I am not alluding, of course, to the newer generation, who have become familiar with the dental surgeon at the school clinics. Why does his fear arise? It is dread of the unknown. His imagination magnifies the effects of any surgical operation, but especially one on such a sensitive area as the mouth; so he gets into a state of nervous apprehension and terror. How are you to deal with such a patient? If you have not gained his confidence, you can do so by explaining to him what you propose to do, illustrating by rough diagrams if necessary. Take the patient into your confidence, and treat him as an intelligent being, and you will find that his apprehension will have disappeared because of the refocussing of his attention upon the explanations you have given. Put your patient in the chair, teach him to relax, and as he relaxes, calmness and confidence will replace his fear. Fear engenders tension. Relaxation is the physical homologue of peace. Now when the patient is in this state of relaxation suggest to him quietly but firmly that he is calm, confident and courageous; that he will now hardly notice the prick of the needle or the contact of the burr, and that the next time he comes he will take all these necessary experiences as a matter of course. Do your work without fuss or hurry, and impress him with your skill, understanding and efficiency. The value of psychotherapy lies in the ability of the medical man to use the power of suggestion.

In December, 1844, Dr. Horace Wells, a dentist of Hartford, Conn., underwent in his own person the operation of tooth-extraction while rendered insensible by nitrous oxide. On September 30, 1846, Dr. W. T. G. Morton, a dentist of Boston, employed the vapor of ether to procure general anæsthesia in a case of tooth-extraction, and thereafter used it with complete success, which achievement marked a new era in surgery.

Further Research Required

FELIX A. FRENCH, D.D.S., OTTAWA.



HERE seems to be some misunderstanding as to wherein the findings of Gysi and Hanau differ, and this statement of the case is offered in the hope that it may help to clarify the issue.

Both are agreed on the principle that an articular mechanism should be adjustable. They disagree as to the best method of recording measurements on the patient and transferring them to the instrument. Gysi advocates the Extraoral method, i.e., making registrations on the outside of the patient's mouth by means of a mechanism designed for that purpose. Hanau advocates the Intraoral method or what is known as the wax bite method.

These registrations are for two distinct purposes: First, To establish the centric relation of the mandible to the maxilla. Second, Registrations for condylar adjustment on the articulator.

On the first there is no dispute. Hanau states that he has no fault to find with the Gothic arch tracing; that while neither it nor the wax bite method is foolproof, that the combination of the two is more than doubly effective than either one alone.

On the Second they disagree. Hanau claims that the Extraoral method is inaccurate, particularly so in cases where the tissues are very resilient. He contends that Articulator movements should not reproduce anatomic movements, but that they must be the equivalent of the anatomic jaw movements because of the fact that restorations are seated, more or less, resiliently in the mouth, while the resilient effect is entirely eliminated by the rigid plaster mounting in the articulator.

It will require accumulated clinical evidence to settle this issue, and it is desirable that clinical research be undertaken in the dental schools that this interesting problem may be determined.

Galen (A. D. 131) taught that the teeth were true bones existing before birth, and to him is credited the belief that the upper canine teeth receive branches from the nerve which supplies the eyes, and hence should be called "eye-teeth."

Injuries of the Jaws

WILLIAM GUY, LL.D., L.D.S.



THE following is a resume of a paper which was read at a branch meeting of the B.D.A., held at Blackpool in June last, as published in the *Dental Record*, September, 1928. Although the author's methods of treating fractures of the jaw are challenging and almost provocative, his opinions are sure to receive much attention and respect, as but few dental surgeons can have had a longer or more varied experience in the treatment of jaw injuries than Mr. Guy. He deals mainly with the types of jaw fracture met with in civil practice, but a few illustrative points are also drawn from his extensive experience in military surgery. While not here venturing on any criticism of Mr. Guy's stimulating and consistently practical paper, a few detached extracts may be quoted by way of indicating the "heterodox" methods and the leading principle—that of restoration of function—which he so vigorously and clearly expounds: "The treatment of these fractures is usually carried out under the impression that immobilization of the fragments and the prevention of any movement of the jaw are the essential conditions for obtaining union. How long it will take to dispel this illusion I cannot tell. So far as dentists are concerned, Lucas Championniere has lived, worked and written in vain. Though the ribs and the clavicle supply us innumerable instances of fractures in which immobilization is impossible, yet union is rapid and effective, we still find that immobilization is worshipped with superstitious veneration." . . . "I base my procedure on the tenet that restoration of function is the primary and ultimate aim of treatment. I discard without hesitation immobilization of the jaws as a means to that end. I have seen too many cases in which, by immobilization, union in good position and with the teeth in good occlusion had been obtained, but the front teeth could not be separated more than a quarter of an inch: the temporo-mandibular articulation permitted very little movement, and the muscles of mastication were atrophied and stiff. A long course of gradual opening the bite, and re-educating the muscles, supplemented by massage and electrical treatment, may in such cases restore, to some extent, the lost function. The condition I describe is

due, not to the injury, but to the treatment." . . . "Movement and exercise of function must be permitted and encouraged from the first."

The fragment having been co-apted, Mr. Guy maintains them in co-aptation simply by means of a one-piece splint cast in silver and constituting a loosely fitting frame surrounding the teeth, but not covering their occlusal surfaces. It merely lies in the mouth, and can be removed for cleansing, or for inspection, or treatment of the mouth and teeth. Nor, continued Mr. Guy, have I any use for the appliances known as the Hammond, Kingsley or Gunning sulints, nor for Payne's "cradle splint," as they are all designed to obtain something I do not want—to wit, immobilization.

Mr. Guy has employed the method he advocates in over 400 cases, and with a measure of success which, he says, justifies his confidence in recommending it for consideration."

How a Dental Nurse Can Increase and Improve the Practice of a Modern Dentist

ELLEN B. TUCK, TORONTO.



EVERY Dentist is anxious to increase and improve his practice. He relies on his nurse for sterilization and surgical cleanliness. When this is carried out in the Operating Room, it (only) follows that the Laboratory and Reception rooms are in keeping. This is one means of increasing and improving a dental practice, for it not only pleases, but gives a feeling of safety to the patient, who sees it during his visit to the Dentist, and who is sure to go out and talk about it to his friends.

Economy of time and materials increases the output of a Dental Office. The Nurse can handle this by,—oiling of handpieces; having instruments always in proper places, sterilized and ready for use, and by careful measuring of materials, so that none is wasted.

Time means money: The Dentist's time can be conserved by the capability of the Nurse in—bookkeeping; accounts; filling in broken appointments; taking a message instead of bringing the operator to the telephone; receiving and dismissing

patients and in purchasing and chair-side assistance.

When the aforesaid procedure is carried out smoothly, system and service will create happiness for the Dentist and his patients. The personality, tact and efficiency of the Dental Nurse, through the co-operation and appreciation of the Dentist, has created this pleasing atmosphere, and she herself is a welcoming hostess to patients who cannot help but appreciate a visit to such an immaculate dental office.

A Tooth in the Bronchus



COURT case recently concluded in the King's Bench Division (London), before a special jury is said to be of the greatest importance to dentists.

About two years ago a young woman entered a dental hospital and was told to have three teeth extracted with nitrous oxide, the operation being done by a student under supervision of a physician, the house surgeon, etc. The crown of one tooth was broken off, although the patient, who was at once sent home, had not been told of any accident and apparently no record was made. A few days later bronchitis, followed by pneumonia, set in with fatal outcome and during the illness the missing crown was expelled by coughing. The hospital authorities knew nothing of this until the mother of the dead woman brought suit against the medical superintendent and house surgeon. There was no dispute as to the facts, but the case hinged on the responsible person. It was affirmed, and denied, that the medical superintendent had been present, while other witnesses were ignorant on this point. The jury were apparently satisfied that the medical superintendent had been in no wise responsible; the house surgeon was forced to assume all of the responsibility and the litigant was awarded 150 pounds damages. Fracture of the tooth itself was not essential, for this accident occurs during extractions with extreme frequency and is unavoidable. Neglect attached to failure to trace the fragment of tooth and if, as seems inevitable, it had been assumed to have passed into the esophagus or trachea, a roentgen or bronchoscopic examination should have been made, the patient and family meanwhile having been taken into the confidence of the hospital staff. The subdean of the college himself testified along these lines as interpreted by the judge, who showed a remarkable grasp of technicalities.—*Editorial in The Dental Surgeon.*



British Columbia—EMORY JONES, D.D.S., New Westminster, B.C.

Alberta—JOHN W. CLAY, D.D.S., 914 Herald Bldg., Calgary.

Saskatchewan — O. W. PARKER, D.D.S., Imperial Bank Bldg., Regina.

Manitoba—W. W. WRIGHT, D.D.S., 767 Warsaw Ave., Winnipeg.

Maritime Provinces—J. STANLEY BAGNALL, D.D.S., 34 Larch Street, Halifax, N.S.

Ontario—LIEUT.-COL. W. G. THOMPSON, 46 Sun Life Bldg., Hamilton.

STANLEY G. McCAUGHEY, D.D.S., 384 McLaren St., Ottawa.

Quebec—M. L. DONIGAN, D.D.S., 1396 St. Catherine St. W.

PAUL GEOFFRION, D.D.S., 308 Sherbrooke Street, Montreal.

Provincial Editors will appreciate receiving from all local societies copies of papers, society proceedings or personal notes, for publication.



MARITIME PROVINCE NOTES.



THE regular meeting of the Prince Edward Island Dental Society was held on August 6th, with a good attendance of the members. The following officers were elected:

President: Dr. A. W. Leard, Summerside; Vice-President, Dr. J. E. Blanchard, Charlottetown; Sec.-Registrar-Treasurer: Dr. J. H. Ayers, Charlottetown; Additional members of Council: Dr. F. E. Smallwood and Dr. T. E. E. Robins.

Dr. F. E. Smallwood, Provincial Delegate to the Canadian Dental Association meeting in Toronto, reported on the meeting. The action of the delegates was approved by the P.E.I. Dental Association and a unanimous vote in support of the reorganized C.D.A. was recorded.

Dr. Harry Thomson was present and gave an interesting and much appreciated talk on the work of the Canadian Dental Hygiene Council. He also outlined a plan for a series of health talks to the meetings of the Teachers' Institutes in August, which was enthusiastically approved by the Association.

The annual fee was fixed at \$2.00 per year.

Dr. F. E. Smallwood was re-elected as delegate to the

Canadian Dental Association and as member of the Dominion Dental Council.

The regret of the members was expressed over the illness of Dr. J. S. Bagnall, who has for so long taken an active interest in the work of the Association.

* * *

Dr. M. E. Morrison, Canso, has been nominated as one of the Liberal candidates for Guysboro at the coming Provincial election.

J. S. B.

* * *

MANITOBA.



WINNIPEG Dental Society opened its 1928-29 season on August 27th, with an afternoon clinic, and an evening paper by Dr. Alfred Gysi, accompanied by Dr. Clapp. A very large attendance was registered, signifying the great interest in Dr. Gysi and his work. On Tuesday, September 4th, Dr. Ante, of Toronto, stopped off between trains and for about three hours gave a very interesting table clinic. It certainly is the hope of many that an opportunity will come soon when Dr. Ante can spend an extended visit with us.

* * *

About fifty dentists from the prairie provinces attended the U.S. National convention at Minneapolis.

One of our dentists, who is an ethical practitioner, but whose dues were in arrears, found that it cost him ten dollars to register at the Minneapolis convention, whereas those who could produce a certificate showing that their local dues were paid were not charged a fee (being guests of a foreign country). It pays to be in good standing.

* * *

Manitoba is preparing for an Oral Health Campaign this winter, similar to that held in Saskatchewan. Dr. Harry Thompson will conduct proceedings and will visit Winnipeg shortly to make preliminary arrangements.

* * *

1928 GOLF TOURNAMENT.

There were eighty players during the season for the quali-

fying round in the Winnipeg Gold Tournament. Prizes were distributed at a Banquet held on September the twelfth at the Winnipeg Golf Club, Doctor W. J. Robb being the presiding officer. The following were the winners:—

Ash Cup—Won by Dr. F. W. Fell, presented by Dr. C. H. Moore. Temple-Pattison Cup—Won by Dr. C. M. Truman, presented by Dr. N. C. Carmichael. Denco Cup—Won by Dr. B. S. Bailey, presented by Dr. B. E. Brownlee. Consolation Prize—Golf Bag—Won by Dr. B. L. Toombs, presented by Dr. R. J. Yeo. Special Prize—Low net 18 holes—Won by Dr. C. M. Truman, for Sept. 12, 1928, presented by Dr. R. J. Yeo. Special Prizes in monthly games—Won by Drs. P. Gallagher, F. W. Fell, C. P. Banning, N. C. Carmichael, J. A. Dow, Manley Bowles, J. Olson, C. H. Moore, W. A. Weir, R. W. Fell, C. M. Truman, J. G. Mills, J. F. Morrison, C. S. McLeod, J. E. Toole, W. E. Taylor, S. R. Bird, A. R. Montgomery, M. R. Steen, R. J. Yeo, W. L. Sawyers, Sam Blair, E. Wallace.

Prizes donated—Miniature Cups—The Ash Temple Co., The Dental Company of Canada, Ltd. Golf Balls—Dr. E. Roy Bier, Manitoba Dental Laboratory, Campbell Dental Laboratory. Golf Bag—Winnipeg Dental Society. Special Prize—The Golf Committee.

Entertainment and music furnished by Dr. Garnet Leckie and by Frank McKinnon and his Orchestra.

W. W. W.

Doctor Alfred F. Webster Honoured

 R. ALFRED F. WEBSTER, who has been engaged in the practice of Dentistry for many years on Bloor Street, Toronto, was re-elected Sovereign Grand Commander of the Supreme Council of Ancient and Accepted Scottish Rite at the final session of the Annual Meeting of that body in Montreal, a few weeks ago. Congratulations, Doctor Webster.

Motor Car Dental Clinic in Northern Ontario

 OCTOR W. CARSON has returned after an extensive tour lasting through the summer and serving the unorganized districts of Northern Ontario. The clinic was planned and supported by the Ontario Department of Health, of which Dr. F. J. Conboy is the Director of Dental Services.

Joseph Lemaire, French dentist, was attached to and accompanied the army of Rachambeau to America in 1781.



---Of Human Interest

This Department is Conducted by
G. MERRICK SINGLETON, D.D.S.

I incite you to read my page, and hope that you may find here, as I have, something which will cause you, for a short time at least, to forget a few of the many perplexities of our daily round.—G.M.S.



On Cultivating a Hobby

IN this so-called "motor car and moving picture age," with its rampant spirit of unrestfulness and discontentment, may I suggest at least one remedy as a means of slightly alleviating these existing ills, one which to myself personally has given no end of happiness as well as being a very profitable relaxation during my spare hours—namely, the cultivation of a hobby.

Hobbies are so many in number and varied in appeal, that I shall only attempt to say something concerning those which appeal most strongly to myself, and in so doing may be better able to lead you through a few of those enchanted hours which happily have been my good fortune to enjoy.

Not necessarily must we limit ourselves to cultivating one hobby, preferably I would suggest two; of course there will always be the favorite child, but it is often very convenient to have the second, as increased pleasure is experienced in turning from one to the other.

Now that Summer has passed and the call of the out-of-doors is growing less distinct, and in the evenings with blazing fires brightly burning, another voice is heard, an old familiar one, which I gladly recognize, and humbly apologize to, for my very slighting attentions paid her during the past season. She is calling from my book-shelves and, as I approach, old familiar faces, row upon row, beam out at me, then a very bedlam lets loose, with voices crying—"Take me, take me," "I am a tried friend and true," "If you wish a good tale I am but yours to command."

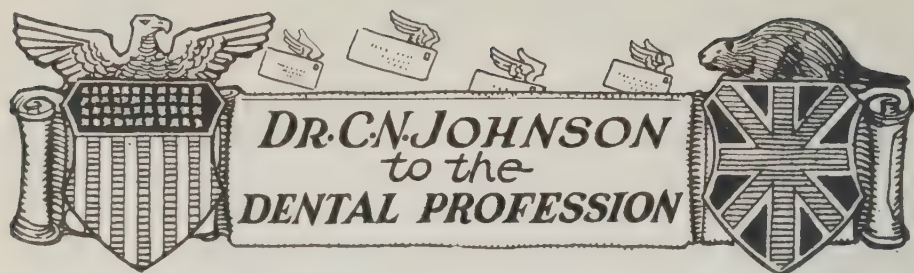
Oh, what an assemblage of old friends they are, and all here once again to welcome me, and cater to my various reading moods and fancies. What a galaxy of talent and master-minds are here represented, and the greatest wait at my command. Dickens offers me his immortal tales, Victor Hugo, and Dumas beg leave to submit their great French classics,

Stevenson calls from his mystic South Sea isle, demure Barrie shyly suggests another excursion to Thrums and a meeting with "The Little Minister," "Margaret Ogilvy" and "Jess." A. C. Benson and David Grayson invitingly beckon me on with their delightfully philosophic essays, and there at the end of the bottom shelf my good friend Samuel Pepys still beams cheerily out, once again willing to transport me through Old London Town, until both weary, we part for the night and his trusty diary again closes the day and records the classic phrase, "and so to bed."

And so to bed it must be, as the hour is late, I have sat long, and everything is very still. The blazing, crackling fire has even settled down for the night and only a few glowing embers remain. But what a night I have had, what company, entertaining and being entertained, by the immortals of all ages, a hobby, aye a royal hobby indeed.

So leaving my first hobby, my favorite child, I next turn to another source of pleasure, one that has served me well, that of autograph collecting. "Nothing," writes Horace Walpole, "gives us so just an idea of an age as genuine letters, nay, history waits for its last seal from them." There are no half hours among my books so pleasant as those in which I go to that end of the bookshelf which holds my little collection of early editions, the value of some of them enhanced for me by the autograph of the author, which I have been able to insert in the prized volume. Being able to add to a good book a letter of the man who gave it to the world has for some time been a keen delight of mine. The hand that wrote the lines I read has possibly been in the grave these many years, but the words on the faded notepaper are still as the master penned them, and often they give a truer index to the man than all he wrote for print and reread and corrected as he passed it for press.

The present age being essentially one of "collecting" I hope to convince those who have not yet included autographs in their sphere of operations, that no form of collecting, either from a literary or antiquarian point of view, possesses greater charm or greater possibilities. Lack of space prevents me from discussing further with you other hobbies which to certain people possess an equal charm and attraction as do these two, my favorites, books and autographs, which I have hastily touched on. So the moral of my tale is—find a hobby, cultivate it, you will be amazed at the genuine pleasure it offers and the handsome dividends it affords.



Aunt Katie

I HAVE just been up to the village to visit dear old Aunt Katie, and it was a benediction. She is ninety and bright beyond belief. Her hearing is good, her eyesight still serviceable, and she is mentally alert. I wish I could give you her whole philosophy, and it is largely this that has brought her to ninety in her physical and mental condition. After all, our mental processes and our point of view have a great influence on our longevity and our physical preservation.

When you greet Aunt Katie and tell her you are glad to see her, she looks up at you—She is usually sitting in her rocking chair—and says with the frankest smile: “I just know you are.” Instantly you are on the most excellent terms with her. There is never the slightest approach to affectation on the part of Aunt Katie, and when she tells you that she knows you are glad to see her, she says it because she believes it, and because it is her nature not only to be frank with people but to be friendly with them. In fact, I like to think that Aunt Katie owes her age and general condition to the fact that she has always been perfectly honest in her attitude toward the world, and always kind toward people. No one could attain to what she has unless kindness had formed the basic of their lives.

I said: “Aunt Katie, when are you coming to Chicago to see me?” And she broke out in a merry laugh, and remarked: “My goodness, that’s a long way off, and I don’t think I’ll ever get there.” I asked her how long it had been since she was in Chicago, and was surprised to have her tell me that she had never seen Chicago. And then I learned that she had seldom been any distance from her home, her one venture being confined to a trip “out West” to see some relatives. During all her days she has lived within a radius of not more than five miles, and has seen the country grow from practically a wilderness to a well-cultivated and thoroughly settled com-

munity. When I urged her in a half-joking way to come to Chicago, she said: "No, I'll never see you in Chicago, but I'll meet you on the other shore—won't I?"

Aunt Katie grants to others the right to be saved, and she does not enquire too closely into their particular belief either. She is astonishingly broad in her attitude toward others, and accords them the same privileges that she reserves for herself. Of course, she is an optimist—no one lives to her age and arrives there in her mental condition if they have imbibed much of pessimism. Optimism contributes to longevity and happiness—pessimism to early disintegration and grouchiness.

I noticed that Aunt Katie has unconsciously picked up a little of our modern slang, and I liked that. It was one way of advertising the fact that she had progressed with the age in which she had lived. And it is always refreshing when an old person uses a little slang. No one is really old who can rattle off a few slang phrases in the course of conversation. I am always a little suspicious of any one, old or young, who invariably uses only proper language and never lapses occasionally into the vernacular of the day. They are too perfect to be pleasant. Aunt Katie is as nearly perfect as any one I know, and yet she saves herself by retaining so much of the human element.

I spoke of her merry laugh. This is one of her most pronounced characteristics—she has always laughed, and she still laughs at ninety. I imagine if she reaches her hundredth birthday she will greet it with a smile. And her good cheer is contagious—you cannot be in her presence very long without laughing yourself. What a marvellous thing it is to carry through life an atmosphere of buoyancy and cheerfulness, and make people laugh instead of weep. Laughter is the rippling river of mirth that flows through the hearts of men and purifies their motives and their desires. No man was ever a bad criminal who really laughed.

"Well, Aunt Katie," I said, "You have had a wonderful life, haven't you?" "Indeed I have," she said enthusiastically with a bright and reminiscent smile on her countenance. "I've raised a family, and while there may have been times that we didn't have so very much, we've never yet gone hungry to bed. I've always been blessed with good friends, and what more do you want?"

Aunt Katie still takes the keenest interest in the affairs of

her neighborhood, and knows everything that is going on. She was asked about a certain friend of theirs and instantly she said: "Oh, he is 'drawing in' to-day over at—," mentioning a farm some distance away. She keeps in touch with all the passing events and with the activities of all her friends, and to-day her advice on the various problems of farming is not to be despised.

When I said good-bye to Aunt Katie she looked at me with that marvellous expression of hers and said: "Now you won't come to this part of the country without having a visit with me, will you?" And I promised. I wanted to put my arms around her and hug her. I surely would if I hadn't been afraid of hurting her. It has been the Aunt Katies of the world who have made it a worth while place in which to live.

C. H. Johnson

Resourcefulness



CHAP came out of the theatre only to find a policeman standing by his auto, where he had thoughtlessly parked it, beside a fire hydrant.

Instead of claiming it and making certain of a summons, he went to a midnight supper, waited an hour and then reported to the police that his car had been stolen.

In a few minutes word came that his car had been found. He was told where it was—beside the fire hydrant. He went there and claimed it, thanked the cop and drove home.

Influence of Mind Upon Our Work



NO one can do good work when the mind is clouded with discontent. The mental sky must be clear, or there can be no enthusiasm, no brightness, clearness, or efficiency in our work. To do the maximum of which you are capable, you must keep your mind filled with cheerful, uplifting thoughts.

Officers of Canadian Dental Organizations

*Oral Health will be pleased to Receive Additions or Corrections that
Directory of Names May be Kept as Accurate as Possible.*



CANADIAN DENTAL ASSOCIATION

President: Dr. John Clay, Calgary, Alta.
Secretary: Dr. J. Stanley Bagnall, 34 Larch St., Halifax, N.S.

DOMINION DENTAL COUNCIL OF CANADA

President: Dr. George Kerr Thomson, Halifax, N.S.
Secretary: Dr. W. D. Cowan, Regina, Sask.

CANADIAN DENTAL HYGIENE COUNCIL

President: Hon. S. C. Mewburn, K.C., Hamilton.
Secretary: Dr. E. A. Grant, Toronto.

CANADIAN DENTAL RESEARCH FOUNDATION

President: Dr. R. Gordon McLean, Toronto.
Secretary: Dr. E. A. Grant, Toronto.

THE DENTAL SOCIETY OF WESTERN CANADA

President: Dr. Geo. L. Cameron, Swift Current, Sask.
Secretary: Dr. C. W. Parker, Regina, Sask.

PROVINCIAL AND LOCAL DENTAL ASSOCIATIONS.

BRITISH COLUMBIA

British Columbia Dental Association.

Pres.: Dr. F. T. Coghlan, Vancouver.
Sec.: Dr. Fraser Allen, Vancouver.

Vancouver Dental Society.

Pres.: Dr. H. M. Cline.
Sec.-Treas.: Dr. P. C. Thomas.

Victoria Dental Society.

Pres.: Dr. J. C. Foote.
Sec.: Dr. S. Youlden.

ALBERTA

Alberta Dental Association.

Pres.: Dr. H. L. Coursier, Wainwright.
Vice Pres.: Dr. M. L. Moore.
Sec. & Reg.: Dr. A. B. Mason, Edmonton

Calgary Dental Society.

Pres.: Dr. A. C. Steeves.
Sec.-Treas.: Dr. B. J. Charles.

Edmonton Dental Society.

Pres.: Dr. Robt. Decker.
Vice Pres.: Dr. Alex. Gemeroy.
Sec.: Dr. W. Scott Hamilton.

Lethbridge Dental Association.

Pres.: Dr. J. S. Stewart.
Sec.-Treas.: Dr. M. J. Gibson.

SASKATCHEWAN

Saskatchewan Dental Association.

Pres.: Dr. A. J. Brett, Regina, Sask.
Sec.: Dr. Irwin Robb, Regina, Sask.

Saskatoon Dental Society

Pres.: Dr. Lee Steeves.
Sec.-Treas.: Dr. Robt. A. Newlove.

Moose Jaw Dental Society.

Pres.: Dr. R. H. McDougall.
Sec.-Treas.: Dr. E. J. Hill.

Regina Dental Society.

Pres.: Dr. W. J. Mooney.
Sec.-Treas.: Dr. W. M. Blair.

MANITOBA

Manitoba Dental Association.

Pres.: Dr. H. J. Merkeley, Winnipeg
Sec.: Dr. J. F. Morrison, Winnipeg.

Western Manitoba Dental Society.

Pres.: Dr. A. R. Hurst, Brandon.
Sec.: Dr. F. S. Spiers, Brandon.

Winnipeg Dental Society.

Pres.: Dr. B. E. Brownlee.
Sec.-Treas.: Dr. Ben. Toombs.

ONTARIO

Academy of Dentistry, Hamilton.

Pres.: Dr. J. N. Stewart.
Sec.: Dr. L. A. Kilburn.

Academy of Dentistry, Toronto.

Pres.: Dr. S. Woollatt.
Sec.: Dr. A. Hord.

Bay of Quinte Dental Society.

Pres.: Dr. F. T. Knight, Picton.
Sec.: Dr. C. E. Wright, Picton.

Brant Dental Society.

Pres.: Dr. W. Hart, Brantford.
Sec.: Dr. L. E. Riddolls, Brantford

Cornwall Dental Association.

Pres.: Dr. J. V. Lally.
Sec.-Treas.: Dr. H. W. Weagant.

Eastern Ontario Dental Society.

Pres.: Dr. S. G. McGaughey, Ottawa
Sec.: Dr. D. C. W. Coupland, Ottawa

Elgin Dental Association.

Pres.: Dr. W. J. Riseborough, St. Thomas
Sec.: Dr. G. T. Mitton, St. Thomas.

Essex County Dental Association.

Pres.: Dr. A. Johnston, Windsor.
Sec.: Dr. O. C. Baker, Windsor.

Grey County Dental Society.

Pres.: Dr. C. Marshall, Owen Sound
Sec.: Dr. J. W. Thackaberry, O'n S'nd

Huron County Dental Society.

Pres.: Dr. G. F. Roulston, Exeter.
Sec.: Dr. F. J. Bechely, Seaforth.

Kingston Dental Association.

Pres.: Dr. A. W. Winnett.
Sec.: Dr. T. H. Renton.

ORAL HEALTH for October, 1928

PROVINCIAL AND LOCAL DENTAL ASSOCIATIONS—Continued.

Lambton County Dental Society

Pres.: Dr. W. A. Hartley, Sarnia.
Sec.: Dr. E. A. Storey, Sarnia.

London Dental Society.

Pres.: Dr. J. F. Giffen.
Sec.: Dr. S. R. Moore.

Niagara Falls Dental Society.

Pres.: Dr. L. C. Jones.
Sec.: Dr. C. A. Tanton.

North Bay Dental Society.

Pres.: Dr. B. F. Nott.
Sec.-Treas.: Dr. L. H. McCool.

North Temiskaming Dental Association.

Pres.: Dr. G. Mitchell, Timmins.
Sec.: Dr. S. L. Honey, Timmins.

North Waterloo Co. Dental Association

Pres.: Dr. H. G. McConnell, Kitchener
Sec.-Treas.: S. Lederman, Kitchener

Ontario Dental Association.

Pres.: Dr. A. E. Webster, Toronto.
Sec.: Dr. F. J. Conboy, Toronto.

Ontario and Durham Dental Society.

Pres.: Dr. F. L. Henry, Oshawa.
Sec.: Dr. B. B. Beaton, Whitby.

Orthodontic Club of Toronto.

Pres.: Dr. H. G. Bean.
Sec.-Treas.: Dr. S. S. Crouch.

Ottawa Dental Society.

Pres.: Dr. Lorne E. MacLachlan.
Sec.: Dr. Ira W. Hamilton.

Peterborough Dental Society.

Pres.: Dr. Harold Long.
Sec.: Dr. N. W. Hayes.

St. Catharines and District Dental Ass'n.

Pres.: Dr. C. R. Davis, St. Catharines.
Sec.: Dr. J. M. Shultis, St. Catharines.

Sault Ste. Marie Dental Society.

Pres.: Dr. G. W. Bald.
Sec.-Treas.: Dr. W. M. MacKay.

Simcoe County Dental Society.

Pres.: Dr. W. M. Seymour, Orillia.
Sec.: J. B. King, Penetang.

South Temiskaming Dental Association.

Pres.: W. J. Fuller, New Liskeard.
Sec.-Trs.: W. R. Jackson, Englehart.

Stratford Dental Society.

Pres.: Dr. D. R. Nethercott, Stratford.
Sec.:

Sudbury Dental Society.

Pres.: Dr. J. C. Fraser, Sudbury.
Sec.: Dr. J. S. Miller, Sudbury.

Thunder Bay Dental Association.

Pres.: W. D. Ramore, Port Arthur.
Sec.: Dr. M. P. Bengier, Port Arthur.

Wellington County Dental Society.

Sec.: Dr. E. S. Burrows, Guelph.

QUEBEC

Montreal Dental Club.

Pres.: Dr. D. P. Mowry, Montreal
Sec.: Dr. A. D. Crowe, Montreal.

Mount Royal Dental Society.

Pres.: Dr. I. N. Pesner, Montreal.
Sec.: Dr. L. S. Eidinger, Montreal.

Quebec Dental Association.

Pres.: Dr. E. Charron, Montreal, Que.
Sec.: Dr. Denis Forest, Montreal, Que.

Société Dentaire de Montreal.

Pres.: Dr. J. A. Pinault.
Sec.: Dr. Paul Geoffrion.

NEW BRUNSWICK

Moncton Dental Society..

Pres.: Dr. J. A. Le Blanc.
Sec.: Dr. A. H. Le Blanc.

New Brunswick Dental Association.

Pres.: Dr. J. Kerr Higgins, St. John.
Sec.: Dr. F. A. Godsoe, St. John, N.B.

St. John Dental Society.

Pres.: Dr. J. E. Edgcombe.
Sec.: Dr. Frank Poyaner.

NOVA SCOTIA

Cape Breton Dental Society

Pres.: Dr. J. P. Parker, Sydney.
Sec.: Dr. J. T. Lebbetter, Sydney.

Dental Association of Nova Scotia.

Pres.: Dr. T. Melanson, Yarmouth.
Sec.: Dr. G. R. Hennigar, Halifax.

Halifax Dental Society.

Pres.: Dr. F. W. Johnson.
Sec.-Treas.: Dr. G. A. Chudleigh.

Western Counties Dental Association

Pres.: Dr. H. O. Harding, Yarmouth
Sec.: Dr. V. G. Turnbull, Digby.

PRINCE EDWARD ISLAND

Prince Edward Island Dental Assoc'n.

Pres.: Dr. T. E. E. Robins, Charlottetown
Sec.-Treas.-Reg'r: Dr. J. S. Bagnall
Charlottetown

REGISTRARS OF PROVINCIAL DENTAL BOARDS.

Prince Edward Island.

Dr. J. S. Bagnall, Sec.-Treas., P. E.
Island Dental Association, Char-
lottetown, P. E. I.

Nova Scotia.

Dr. A. W. Faulkner, Registrar, Nova
Scotia Dental Board, 69 Gottingen
St., Halifax, Nova Scotia.

New Brunswick.

Dr. Frank A. Godsoe, Registrar,
Council of Dental Surgeons, St.
John, N.B.

Newfoundland.

Dr. W. T. Rea, Sec.-Registrar, New-
foundland Dental Board, St.
Johns, Nfld.

Quebec.

Dr. D. Forest, Registrar, Quebec
Dental Board, 187 de la Roche St.
Montreal, Quebec

Ontario.

Dr. W. E. Willmott, Sec.-Treas.,
Royal College of Dental Surgeons
of Ontario, 240 College St., Toronto

Manitoba.

Dr. W. W. Wright, Registrar, Mani-
toba Dental Association, 767
Warsaw Ave., Winnipeg, Man.

Saskatchewan.

Dr. L. J. D. Fasken, Registrar, Sas-
katchewan College of Dental Sur-
geons, Regina, Saskatchewan.

Alberta.

Dr. Leslie McIntyre, Registrar, Al-
berta Dental Association, Edmon-
ton, Alberta.

British Columbia.

Dr. W. J. Lea, Registrar, College of
Dental Surgeons of B. C., Van-
couver, B.C.

Oral Health



Vol. 18

TORONTO, OCTOBER, 1928

No. 10

EDITOR:

WALLACE SECCOMBE, D.D.S., F.A.C.D., Toronto, Ont.

CONTRIBUTING EDITORS:

C. N. JOHNSON, M.A., D.D.S., F.A.C.D., Chicago.

W. E. CUMMER, D.D.S., F.A.C.D., Toronto.

Entered as Second-Class Matter at the Post Office Department,
Ottawa.

Subscription Price, Canada and United States, two dollars per annum; elsewhere three dollars. Single Copies 25c. Free distribution to all members of the Dental Profession practising within the Dominion of Canada and Newfoundland.

Original Communications, Book Reviews, Exchanges, Society Reports, Personal Items and other Correspondence should be addressed to the Editor Oral Health, 102 Wells Hill Avenue, Toronto 10, Canada.

Subscriptions and all business Communications should be addressed to The Publishers, Oral Health, Royal Bank Building, 269 College St., Toronto, 2, Can.

EDITORIAL

Advances in Dental Education

THE Carnegie Foundation began its study of dental education in 1921 and continued it, under the direction of Dr. Wm. J. Gies, for about five years, when a very complete report was published. During this entire period of study there occurred a widespread discussion of dental standards both in United States and Canada with a general tendency toward an increase in the cultural and scientific requirements in many of the colleges.

The old four-year plan has now been superseded by others, which in each case reflect the views of the university concerned and the needs of the particular locality. This has resulted in many different plans being developed and a measure of confusion has arisen particularly in the arrangement of transfer of students from one college to another. Throughout all of the dental schools there has been a definite tendency toward higher standards and it is gratifying to learn how many universities have already adopted two years of college work followed by four years of dentistry, or, its equivalent, the one-five plan.

Under this latter plan the second pre-dental year is under the supervision of the Faculty of Dentistry where the student is registered instead of in the Faculty of Arts.

Dr. Minor J. Terry, Secretary of the State Board of Dental Examiners of New York, reported at the recent meeting of the National Association of Dental Examiners that only three schools in the United States have adopted the two-three plan of dental education, and that only one school remains operating upon the old four-year plan.

Twenty-two schools have adopted one college year followed by four years in Dentistry, and almost an equal number have adopted the higher standard of two years of pre-dental work. The Canadian schools have adopted in principle the two-four plan, either through the requirement of two years of Arts or its equivalent and four years' Dentistry, or one year of Arts or its equivalent and five years' Dentistry.

Modern Dentistry needs men of high scholarship and scientific attainment that the people may receive the greatest possible measure of dental health service. The character of the dental profession of to-morrow is fashioned by the hand of the dental profession of to-day, and in advising prospective students only the more worthy should be encouraged to enter the ranks of the profession.

Testimonial Dinner in Honour of Alphonso Irwin, D.D.S.



THE Southern Dental Society of New Jersey has issued invitations to a Testimonial Dinner to Doctor Alphonso Irwin, to be held at Camden, N.J., on October 27th, 1928. Dr. Irwin has made an exhaustive study of Dental Laws throughout the world and is a recognized authority upon the subject.

Editor of "The Lancet" in Canada



SIR SQUIRE SPRIGGE, M.A., M.D., eminent in the medical world as Editor of *The Lancet*, with which publication he has been connected since 1892, was a recent visitor to Canada. Sir Squire has always shown a sympathetic interest in dental questions and considers the teeth as being closely related to health in the body.

173

GO to your work and be strong, halting
not in your ways, Balking the end
half-won, for an instant dole of praise;
Stand to your work and be wise—certain of
sword and pen—Who are neither children nor
gods, but men, in a world of men.

—Rudyard Kipling.



CARL J. GROVE, D.D.S., LL.B., F.A.C.D.,
St. Paul, Minn.

ORAL HEALTH

*A JOURNAL THAT STANDS FOR THE "OUNCE OF
PREVENTION" AS WELL AS THE "POUND OF CURE"*



Vol. 18 TORONTO, NOVEMBER, 1928 No. 11

A Simple Standardized Technique for Filling Root Canals to the Dento- Cemental Junction With Per- fect Fitting Impermeable Materials

CARL J. GROVE, D.D.S., PH.G., LL.B, F.A.C.D.



A SURVEY of the dental literature indicates that the writers upon the subject of pulpless teeth are all in accord as to the advisability of filling root canals to the dento-cemental junction, yet there has never been a technique offered that will definitely accomplish this result.

With root canal authorities agreed as to the required surgical procedure, the problem now confronting us is the adoption of a mechanical technique which will assure these definite results.

The method I am offering will not only assure filling to the dento-cemental junction, but will hermetically seal the apical third of the root canal permanently. The simplicity of this technique makes it possible for any dentist to do successful root canal operations. The material required must essentially be impermeable, otherwise bacteria present in the tubules of the dentin would escape into the periapical tissue, causing infection.

The seriousness following the development of such a condition does not seem to be generally recognized. This is evidenced by the fact that dentists are using many of the permeable preparations offered them. The canals must be filled with materials that will not permit the seepage of bacteria taking place. It should be remembered that the sealing of the apical portion of the canals is of prime importance to prevent bacteria existing in the dentin from escaping through the foramen into the periapical tissue.

The chief reason so many root canal operations have failed is because the foramen was not sealed with suitable materials. It can be safely stated that many of the materials used at present, which are regarded as being impermeable, do deteriorate when subjected to moisture, making the filling permeable.

The material I recommend for this purpose is gold, in the form of a cone, being made a definite diameter. The gold cone is standardized to the reamers used for opening the root canals. In fact, it is a gold root canal inlay. I selected gold because it is a noble metal, it is not acted upon by the fluids of the body and has the proper rigidity. Since gold possesses all the essential physical qualities it makes an ideal root canal material.

The diameter of the reamers is determined by actual measurements of the diameter of the apical third of the root canals. The reamers are made only slightly larger than the natural openings of the canals.

Since the gold inlay is standardized to the reamers, very little plastic material is required in conjunction with the inlay. The liquid I use for this purpose is a carbolated resin called *neuro-lite*, which is non-irritating, hardens at body temperature, even in the presence of moisture, it does not disintegrate, and has unusual cohesive properties, making it a very desirable preparation for this purpose, because it seals the mouth of the tubules, preventing the bacteria from escaping.

For many years I have repeatedly called attention to the danger of filling beyond the dento-cemental junction, because in doing so it necessitates destroying the tissue in the foramen. This is peridental membrane placed in this space in order that nature might bring about a process of healing that will leave the resistance of root end tissue equal to that possessed by the tissues on other portions of the root.

The pulp does not extend through the foramen as has been generally believed. The pulp ends at the dento-cemental junction and the tissue beyond that point should not be disturbed, for whenever this is done the possibility of infection is at least increased, if not actually a prime factor in producing infection, as shown in Fig. 1. Ever since 1916, I have endeavoured in my writings to show why this tissue should be preserved in pulp removal. Fig. 2 is a longitudinal section, (b) pulp (aa) root (c) peridental membrane. It is important

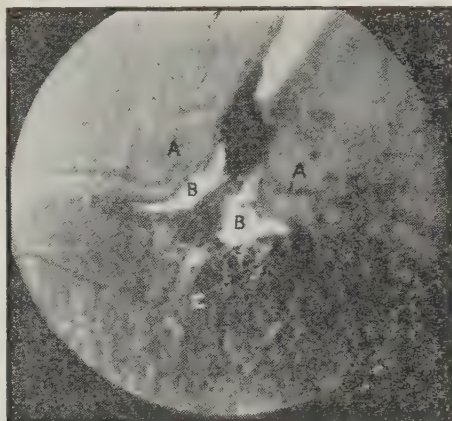


Fig. 1.—Shows what follows a destruction of the tissue in foramen: (AA) dentin (BB) open space caused by destruction of tissue at dento-cemental junction.



Fig. 2

that this tissue be preserved. If it is left intact it will be obliterated and followed by a deposit of cementum to close the entire foramen, as can be seen in Fig. 3, which is a cross section of the foramen, (a) cementum. This area was formerly occupied by periodontal membrane, (d) dentin, (c) cementum on outer surface of root. Fig. 4 is a high magnification of a portion of the cementum in Fig. 3.

It is just as important to have a technique that will thor-

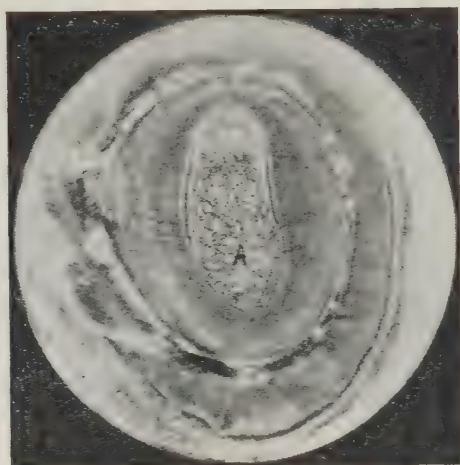


Fig. 3

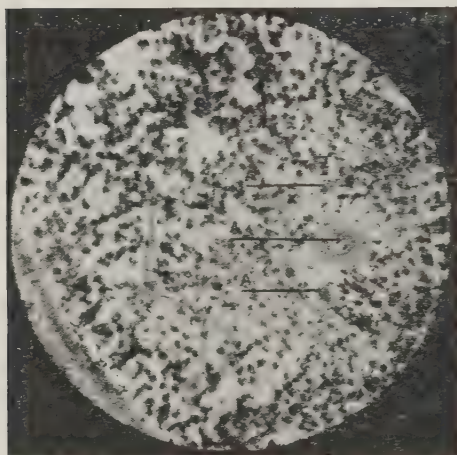


Fig. 4

oroughly remove all of the pulp tissue, as it is to have impermeable materials for the success of any root canal method. As a basis for this technique it was necessary to obtain the average diameter of the apical third of all the root canals in order to know the size of reamers required for each root. If the reamers had been selected at random, as is usually done, the instruments might be either too large or too small. If the reamer was much larger than the canal, a great deal of unnecessary cutting would be needed and, if too small, the inlay would not fill the diameter of the canal, leaving space for bacteria to escape into the periapical tissue. The length of the canals were also obtained as given on the chart below.

ORAL HEALTH for November, 1928

REFERENCE CHART.

UPPER TEETH			LOWER TEETH		
	Length of Root	Reamer Required		Length of Root	Reamer Required
Central.....	12¼ M.M.	No. 4	Central.....	11¾ M.M.	No. 1
Lateral.....	12¾ M.M.	No. 3	Lateral.....	12½ M.M.	No. 1
Cuspid.....	17 M.M.	No. 3	Cuspid.....	15 M.M.	No. 1
1st Bicuspid.	12 M.M.	No. 2	1st Bicuspid....	7½ M.M.	No. 2
2nd Bicuspid	13¾ M.M.	No. 3	2nd Bicuspid....	14 M.M.	No. 2
First			First		Mesial R.No.2
Molar.....	12¾ M.M.	No. 1	Molar.....	13 M.M.	Distal R.No.1

Before proceeding with the root canal technique, I wish to describe the reamer holder illustrated in Fig. 5. The holder has rather a long, tapering end, for the purpose of permitting it to enter the opening of the crown where a shoulder has been established in the bottom of the pulp chamber, furnishing a landmark or a stopping place for the holder. The slot in the centre of the handle, with the vernier scale on the side of the handle, is to make it possible to measure the length of the root. The stem of the reamer, or broach, extends into this opening, and the scale is so marked that it indicates the distance from the small end of the holder to the point of the reamer or from the shoulder to the point of the reamer. This gives the exact length of the root.



Fig. 5



Fig. 6

CLASSIFICATION OF PULPLESS TEETH.

- Class 1—Exposed non-infected pulps.
- Class 2—Infected pulps.
- Class 3—Acute Periapical Infection.
- Class 4—Partly filled canals non-infected periapical tissue.
- Class 5—Chronic periapical infection of rarefied area.

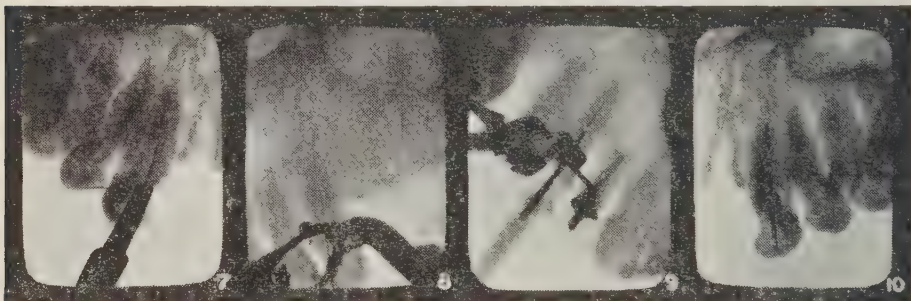
TECHNIQUE.

A diagnostic X-ray should always be taken before starting any root canal operation, in order to determine into which class it belongs.

Assuming that a tooth in Class (1) is to be treated. Exposed pulps, in my opinion, should always be removed, not capped, except when only temporary treatment is desired.

Block anesthesia is preferred, sometimes pressure or gas anesthesia must be resorted to. Adjust rubber dam, refer to chart for length of root and size of broach indicated, then establish shoulder in bottom of pulp chamber by using end cutting burr for stopping place of broach holder, shown in Fig. 6. This will prevent broaches from going through foramen and injuring periapical tissue. If pulp chamber has been destroyed by caries, restore with cement before shoulder is made.

Place smooth measuring broach in holder to point on the vernier scale indicated on chart. When holder rests on shoulder take radiogram with broach in canal to determine if apex is reached, if not at apex remove broach from



canal, extend broach in holder to required length, again place broach in canal and take another radiogram with broach in canal. Figs. 7 and 8 shows measuring broach at apex. When apex is reached, note reading of broach on the vernier scale of holder, now place required size barbed broach in holder at same point, insert to shoulder and proceed to remove the pulp. Possibility of broach passing through foramen will be prevented by holder resting on shoulder. It will be possible to remove pulp just to dento-cemental junction by this technique. Refer to chart for size of reamer required. Place reamer in holder at same point as previous instrument, and continue reaming until holder rests on shoulder. Radiogram will not

be needed, for the same apical point will always be reached, because all instruments are the same length. Next step, use file to smooth up canal. Fig. 9. It is important to use file in order to have gold root inlay fit canal properly, for inlays are standardized in diameter to reamers.

The canal is now ready for gold inlay. Select size same as instrument, place inlay in holder at point corresponding to previous reamers and try it in canal to make certain that it goes to place. If holder rests on shoulder the inlay is at apex. Introduce into the pulp chamber a small portion of neurolite, which is a carbolized resin, is impervious and becomes hard at body temperature. Then work the liquid into the canal with the inlay, or smooth broach, and force inlay into place, then remove holder. Remove excess neurolite with acetone and fill pulp chamber with cement. Fig. 10. Inlay in position.

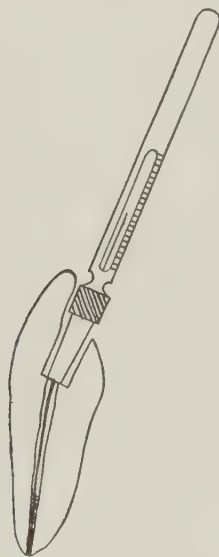


Fig. 11.—Reamer preparing canal for gold root canal inlay.

In Class (1) the entire operation may be completed at one sitting; however, if it is more convenient to divide the work into two sittings, a dressing of Glycerine-cresote should be sealed in canal.

Class (2) Open chamber and seal Chloro-Thymol in the canal and leave for three or four days. Second sitting, adjust rubber dam. If dressing is free from odour and culture is negative, proceed as in Class (1). If there is odour present seal in another dressing of Chloro-Thymol and leave for three or four days before completing operation.

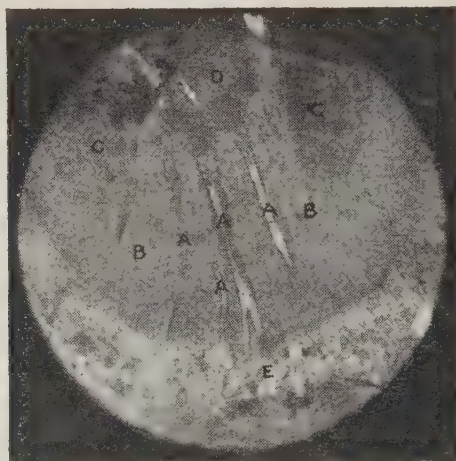


Fig. 12.—Apical portion of root showing multi-canal at (AAAA) These canals are formed in the development of root end by a deposit of cementum after eruption of tooth, (BB) cementum, (CC) dentin, (E) peridental membrane.

Class (3) Treat with Chloro-Thymol until odour disappears, then take culture; if negative, treat as Class (1).

Class (4) Place rubber dam on tooth, and proceed to remove root filling. Take culture; if negative, proceed as in Class (1); if positive, treat as Class (2).

Class (5) Are hopeless and, in my opinion, should be extracted.

Focal Infection with Special Reference to Dental Infection and Mouth Sepsis*

BY W. L. HOLMAN, B.A., M.D.

Department of Pathology and Bacteriology, University of Toronto.



SINCE Arad Nana, the physician to the great king of Assyria, Ashur-bani-apal, who reigned from 668 to 626 B.C., told the king that "the pain in his head, his sides and his feet, had come from his teeth, and that they must be extracted"—since these early days, and undoubtedly for centuries before, the problem of dental focal infection has been before us. James VI. of

*Read before the Ontario Public Health Officers' Association, 1928.

Scotland, who became James I. of England, had badly decayed teeth and suffered for years from severe chronic rheumatism and chronic Bright's disease. John Constable, the great landscape artist, had bad teeth and at times suffered so severely from rheumatism that he could neither write nor paint. He died suddenly, probably from heart disease.

Dr. H. B. Anderson, in his delightful article, "Robert Burns, His Medical Friends, Attendants and Biographer," has shown that Bobbie Burns knew the pangs of toothache, as everyone who has read his "Address to the Toothache" must believe. He had severe rheumatism and died at the early age of thirty-seven, undoubtedly from a heart involvement—a bacteria endocarditis.

Dental Focal Infection is to-day a topic of very live interest and I am sure I would be wasting your time if I were to give you a list of the systemic diseases in which it plays a part. You all understand the simple meaning of the term "Focal Infection." It is a process of infection following a local, established, and usually chronic, infection that has risen at some preceding time. As applied to the teeth we may think of certain bacteria establishing themselves in deep pyorrhœal pockets, in cavities in the teeth themselves, particularly in the pulp and, most important of all, in the tissues about the roots or apices of pulpless, root-filled teeth, the so-called apical infections. The x-ray films suggest such infections only when there has been produced some destruction of the tooth itself or of the bone of the jaw which, seen as a lighter area, is the zone of rarefaction. The finding of such clear areas about the teeth does not prove that an active infection is present, but nevertheless it is most valuable evidence in incriminating a particular tooth.

Pulpless teeth, that is, those teeth in which the pulp has been destroyed by the process of infection in caries, the prolonged action of large fillings, or artificially by the dentist, must always be suspected, but to limit our investigation to these would indeed be dangerous. These pulpless teeth are often inaccurately called "dead" teeth, but a tooth is only dead when it has been extracted, the pericementum about the root almost always remaining alive. Moreover, many infections giving rise to systemic disease may not have produced the type of reaction which shows itself in dental films and, on the other hand, areas of rarefaction may indicate high resistance

and, as a matter of fact, a fairly large proportion of such areas are found on culture to yield no growth.

There are two considerations which may help us in the maze of difficulties. One is the frequent evidence of tenderness of varying degrees about active areas of infection which is very often noticed only under conditions of general fatigue, when the individual is tired out physically or mentally. This is usually overlooked, but it is an important symptom. The second consideration is that more attention be paid to minor complaints, such as repeated attacks of lumbago, slight arthritic pains, aching muscles and similar discomforts which are all too often looked upon as simply among "the thousand natural shocks that flesh is heir to." These, however, are not uncommonly the early symptoms of more serious disease and it is at this point that we should think of focal infection, and that of the teeth particularly.

It is rare indeed to find anyone with perfectly healthy teeth and, superficially, this fact may be used as an argument against the importance of dental infection. The truth of the matter is that these infected foci are always potential sources of danger. The human body, as we so well know, has an enormous reserve of energy and recuperative power. It is overcoming bacterial invasion almost every hour of the day. Streptococci from unsuspected sources will find their way into our blood stream and tissues. What becomes of them? In the vast majority of cases they find conditions unfavourable for their growth and they disappear. They are often destroyed by our normal ever-active defences. Now and then a little contest takes place in some overworked, fatigued part of the body and here a reaction occurs. Now a reaction means a mobilization of the defending cells and slight damage to the tissues often follows. Here again, repair may be complete, but all too frequently there is a permanently weakened area which will be slower to respond to a future onset. Multiply this process and after a little it attracts the attention of the patient, at first but vaguely, and can scarcely be called a clinical symptom. The future of preventive medicine is to recognize what is going on farther and farther back into the beginning of the disease process. At this time another process is at work—the body is becoming hypersensitive to the presence of this foreign bacterial protein or its products and under favouring conditions an extremely small dose may produce an acute attack as is so often seen, for example, in rheumatism.

The dangerous types of lesion about such infected foci are those in which there are numerous capillaries, thin-walled, and in close contact with the bacterial contents of the infected area. This is well demonstrated and is evident to even the most superficial observer in pyorrhœal pockets. Often the slightest touch breaks the delicate walls of these abundant capillaries and we have bleeding gums. The same is true of the infected foci at the roots of the teeth, but here we have no evident bleeding. Bacteria may, and undoubtedly do, under both conditions, find their way into the capillaries and hence to the blood stream.

In malocclusion, that is, when the upper and lower teeth do not meet properly, we have a repeated and dangerous pressure on the sides and at the apex of the tooth which favours the invasion of the blood by the bacteria. Because of this continuous strain coming into play every time we close our teeth in chewing, and all day long whenever we swallow, the irritation thus caused at these sites, not only favours the establishment of an area of lowered resistance in which infection may start, but further, it prevents the normal healing process when infection has been established. After all, immobility, or rest, of the infected part is the essential for healing.

Caries or cavities in the teeth are the breeding places for bacteria which find their way through the tubules of the teeth into the pulp and this vital centre of the tooth dies and a pulpless tooth results. The pulp is also often killed by dentists and the space in the roots filled. The substances used in killing the pulp and the actual filling material itself, may reach the tissues surrounding the root and do local damage which favours infection at this point. The circulation to and from the tooth through the opening at the root tip is further easily interfered with and the nutrition of the tooth suffers and the pulp may die.

A favourite story often heard among the laity is that of the doctor who, after examining a patient, pronounces that the teeth are at the root of his trouble and they must be removed. The patient then gleefully remarks that he has only false teeth. An x-ray film of many such cases will show, however, the presence of tooth fragments and infected processes in the jaw. Careless extraction without treating the actual site of infection is worse than useless. Thus it is seen that there are numerous factors which make infection about the teeth and blood stream

infection, often of only relatively few bacteria, a very common event.

Now there is the other side of the problem. We should always think of the almost endless factors which affect the localization in other tissues of the invading bacteria. Overwork resulting in fatigue, which simply means a sluggish or negative response to irritation, is the prime factor in the establishment of secondary infections in other parts of the body. This may occur in any organ or tissue,—the kidneys, the pancreas, the heart, the muscles, the brain, the tonsils, the tissue about the teeth or anywhere where the stress and strain is great enough or comes into play often enough. It is primarily a question of the circulation of the blood being insufficient to meet the demands of the overfunctioning part. Nutrition must reach the tissues and the products of their metabolism must be removed in order to keep them healthy, that is, reactive to irritation. This involves every consideration which will prevent fatigue. Now although these conditions of fatigue may be the very conditions which favour stoppage of the bacteria, they *in themselves* may produce very little actual damage which cannot be overcome by purely physiological readjustments. If, however, infection from a focus complicates the picture, then, very often, we have permanent damage produced and the removal of the source of infection is essential to recovery.

This all means that a person in good general health may have infected foci about the teeth and “get away with it” for years, but it is the potential danger of a break in this condition of general health, an unexpected strain, which must be thought of and guarded against. On the other hand, people are continually overdoing in innumerable ways and, here again, no disaster occurs unless there is present a source of infection from which bacteria can reach the overworked, sluggishly responsive tissue. Let us not forget that the problem is complicated, but that much can be done on one side in preventing foci of dental infection and on the other side in knowing more about the dangerous kinds of overwork and in learning how to keep the tissues of the body physiologically healthy.

During active exercise the circulation in all parts of the body is increased, more capillaries are fully open and fully functioning—the metabolism is rapid. After the exercise is over, a general readjustment in all tissues must take place.

Now the trained athlete has learned from long experience and empirical practice, that immediately after active exercise there are many metabolic products still to be removed and he prevents the disaster of slowing the circulation too rapidly, by wrapping warmly in blankets, by massage and his "rub down." At the time of exercise, bacteria may readily enter the blood stream through the dilated capillaries about an infected focus, but the chance of stopping in other tissues is at a minimum. After exercise, the closing capillaries and the slowing of the stream of blood, made more viscid also by the loss of water in perspiration,—these conditions favour localization of bacteria in certain tissues. If all our office workers, our farmers and others could be told to keep warm after playing games or a hard day in the fields, much could be done to prevent systemic infections even with infected dental foci. Constipation, which begins with a reflex stimulation from the bowel, flushed cheeks and a feeling of well-being, is followed by fatigue, with a general pallor, depression and headache. Here again we have the combined influences, at first favouring invasion and then favouring bacterial localization. Problems of diet, proper exercise and many general considerations of healthy living, besides proper attention to the teeth and jaws, must all be recognized in this most common of all modes of infection, the cause of most of our chronic disabling diseases and a stupendous source of economic waste, is to be prevented.

Dental Conditions of Children in Different Parts of the World

THADDEUS P. HYATT, D.D.S., F.A.C.D.



WHEN we read in a dental journal that an examination of school children shows that there are from 30% to 40% who do not need any dental care, and then find in some other magazine a report showing that from 90% to 96% of school children have dental defects, we become perplexed as to which report is to be accepted. We also wonder what are the conditions and environments of the children, when 40% have no dental defects, while their more unfortunate schoolmates in another part of the world are found to be so susceptible to dental caries.

In talking with one of the examiners of children's teeth, he told me that they found a very large number who did not require any dental attention. I asked, what was the technique followed in making these examinations? The doctor informed me that only a mouth mirror was used. It seems that the teeth had not been cleansed, the calcarious deposits had not been removed, and no fine-pointed explorers had been used to detect enamel defects and small carious cavities. I expressed my surprise that he would be willing to accept any data based on such a casual and incomplete examination. To accept the statement, after such an examination, that 40% or even 30% of the children do not need dental attention will defeat every effort for preventive work.

Inasmuch as the public, the Medical Profession, and all Welfare Workers, are greatly interested in the possibilities of Preventive Dentistry, and as it is essential, if we are to successfully meet this problem, that we made our deductions from *actual facts*, it seems advisable to adopt a standardized method for making and recording dental conditions as they actually exist.

By standardizing the procedure for detecting and locating carious cavities, enamel defects and fillings, using explorers of the same kind, shape and size, and adopting the same form of chart for recording, the information thus obtained will be more reliable. Statistical data secured in this manner will enable us to better understand the problem which confronts us. It will then be simpler to formulate a plan of attack, and the results achieved will again enable us to measure the amount of success we are obtaining.

There is nothing that jeopardizes the success of our work and also calls into question the scientific attainments of dentistry, as a profession, than to find such a diversity of opinions as now exist in the rank and file of the dental profession to-day.

No sacrifice of personal opinion is too great to be made, so that a united and uniform standardized diagnostic procedure can be evolved and followed. I would, therefore, most earnestly suggest that all dental organizations, groups of dentists and individual dentists who are making dental examinations of school children and who take pride in their profession and desire to establish preventive measures on a scientific basis need to get together and adopt a definite procedure for diagnostic examinations. The minority should be willing to

submerge their opinion and support and carry out the decision of the majority. If this is followed for 3 or 4 years, the mass of statistical data secured will be of inestimable value and will serve as a scientific basis on which to establish a logical procedure for the care of children's teeth.

To start such a movement as this would resound to the credit of any organization and individual workers throughout the world will be glad to co-operate.

Burs



THE author describes a series of very exact experiments carried out to determine: suitable material, the number, shape, arrangement, angularity and thickness of the blades, the angle at which to cut and the minimum of pressure in so doing, the cutting and the speed of rotation.

The author concludes as the result of his observations: That steel burs cannot be used to cut enamel. That an increase in the number of blades results in a proportionate loss in efficiency. That to obtain a smooth cutting, while highly skilled operators working with a fastly revolving motor could dispense with some of the blades, the average operator could not do so without resulting in a jarring and ragged cutting. A good bur for the average operator should bear from four to six blades on the surface. The angle at which the bur should be held to the surface to be cut should be 90 degrees. The thickness of the blade should be about $\frac{4}{10}$ of a millimetre. The greater the steadiness in holding the bur the greater its efficiency. That the pressure on a bur should be about one pound or 400 grams. That the most efficient speed of rotation is to be found between 5,000 to 8,000 revolutions per minute. That one, while using the bur, should bear in mind certain practical considerations, such as bur speed should be regulated in accordance with the sensitivity of the spot, never use undue pressure, and most important of all, to use the bur intermittently.—DR. EMILE HUET (*Le Journal Dentaire Belge*, per *Penn Dental Journal*, March, 1928).

University of Toronto, Faculty of Dentistry, Annual Course for Dental Practitioners

THE Annual Course for Dental Practitioners is to be held this year for one week, commencing Monday, December 17, 1928.

This Course is designed to meet the need of general practitioners who may desire to refresh their knowledge and become more familiar with the advances of recent years in important branches of dentistry.

GENERAL SESSIONS

All registrants are expected to attend the general sessions comprising 20 lectures, as follows:

Clinical Dentistry and Diagnosis—2 lectures.

Dental Surgery and Anaesthesia—5 lectures.

Preventive Dentistry—5 lectures.

Orthonontia for the General Practitioner—2 lectures.

Dental Praxis—3 lectures.

Periodontia—3 lectures.

GROUP SESSIONS

The class will be divided into groups for laboratory work, demonstrations and clinical practice as follows:

Group 1—Clinical Dentistry and Diagnosis—7 morning hours, 10 afternoon hours.

Group 2—Peridontia—7 morning hours, 10 afternoon hours.

Mornings Only—7 Hours Each Group

Group 3—Operative Dentistry.

Group 4—Dental Surgery and General Anaesthesia.

Group 5—Full Denture Prosthesis.

(Registrant may select only one of these groups.)

Afternoons Only—10 Hours Each Group

Group 6—Orthodontia for the General Practitioner.

Group 7—Dental Surgery and Local Anaesthesia.

Group 8—Crown and Bridge Prosthesis.

Group 9—Partial Denture Prosthesis.

(Registrant may select only one of these groups.)

A brief outline of the work to be covered follows:

Crown and Bridge Prosthesis

Dr. I. H. Ante.

This course will cover the following: reasons for failures; physiological essentials; surgical and technical diagnoses; choice of bridge work fixed or removable; design and construction of pin inlays, three quarter crowns, dowel crowns, cast crowns, shell crowns, porcelain pontics and wire clasps; casting and its difficulties.

ORAL HEALTH for November, 1928

Partial Denture Prosthesis

Dr. W. E. Cummer.

Following a brief reference to the Science of Partial Denture Service, the methods of practice, as demonstrated, will include design, construction (including impressions and articulation), installation, and maintenance and repair.

Dental Surgery and Anaesthesia

Drs. E. W. Paul, W. B. Amy and F. S. Jarman

Lectures on the subject of Anaesthesia (local and general) and Dental Surgery will be given, with numerous clinics where actual operations will be performed.

Full Denture Prosthesis

Dr. W. G. Switzer

In Full Denture Prosthesis instruction will be given on impressions, bite taking, setting up teeth and finishing. The course given will be essentially practical, the instructor carrying through to completion a full upper and lower case for a patient.

Operative Dentistry and Therapeutics

Drs. A. E. Webster and L. F. Krueger

The course in the Department of Operative Dentistry will especially cover the management and treatment of children's teeth, cavity preparation for inlays and attachments, and methods of determining how long a human denture will last and how to determine the relation of diseased teeth to certain general diseases.

Orthodontia

Drs. G. G. Hume, C. A. Corrigan and C. A. Kennedy

This course will be so planned as to be of special value to general practitioners in dentistry who may desire to undertake the treatment of some of the more simple cases in Orthodontia. These will be discussed both from the standpoint of diagnosis and treatment. There will also be given a short laboratory course covering the materials to be used in technique and the construction of appliances. Selected cases from practice will also be shown.

Periodontia

Drs. Harold K. Box, W. G. Trelford, C. A. Snell, C. E. Sutton and R. M. Box

The work will cover the subject of Periodontia, embracing the pathology, etiology, diagnosis and treatment of Periodontal Disease. Members of this group will be assigned patients in the Infirmary and will be expected to provide themselves with the following instruments:

McCall scalers (SSW), 4, 7, 8, 9, 13, 14.

Towner scaler U15, Clev-Dent.

Box periodontal probes, 1, 2, 3.

ORAL HEALTH for November, 1928

Box cemental curettes, 1, 2, 3, 4, 5.

Cemental curette sharpener.

Box periodontal curettes, 1, 2, 3, 4, 5.

Information concerning suppliers of these instruments will be furnished at the time of registration.

Preventive Dentistry

Drs. Wallace Seccombe and M. A. Cox

The problem of susceptibility and immunity to dental disease will be studied with special reference to diet and nutrition. Diet Charts and Tables of Foods designed to meet the needs of the general dental practitioner, enabling him to make an intelligent study of susceptible cases in office practice, will be presented. Practical phases of oral hygiene will be discussed.

Clinical Dentistry and Diagnosis

Dr. A. D. A. Mason

In this subject opportunity will be afforded for members of the group to work for patients and receive chair-side instruction upon any phases of dental practice desired by the individual registrant.

Dental Praxis

Dr. F. J. Conboy

The course will consist of three lectures covering the development and management of a dental practice. The subjects of analysis of the possibilities of progressive advancement, the extension of acquaintance by well-selected contacts, the creation of favourable impressions, character analysis and management of patients, fixing and collecting fees and modern and efficient business systems will receive consideration.

REGISTRATION AND OPENING LECTURE

Applications will be received by mail but all registrants should be present at the Dental Building, 240 College St. (corner Huron St.), at 9.00 o'clock on the morning of Monday, December 17th, 1928. The opening lecture will be given at 9.30 a.m.

PRELIMINARY READING

Graduates may avail themselves of the facilities of the Faculty Library to secure books for study previous to or during the progress of the course.

FEE

The fee for the course for Dental Practitioners is \$25.00. The fee is payable to the Bursar, University of Toronto, Toronto 5.

REGISTRATION FORMS

Registration forms will be forwarded upon application to the Secretary, Faculty of Dentistry, 240 College Street, Toronto 2, and should be returned by December 1, 1928.

Preventive Orthodontia in the Practice of Children's Dentistry*

EARL E. GRAHAM, D.D.S., CHICAGO, ILL.



THE subject, "Preventive Orthodontia in the Practice of Children's Dentistry," might be interpreted to mean that only those who limit their practice to the care of children's teeth are responsible for preventive orthodontia. On the contrary, it should be the duty of every dentist to study the causes of malformations and to work toward their prevention. Considering the word "preventive" in its derivative meaning, we have "the act of coming before." Therefore, to prevent a condition, we must anticipate its coming and remove the cause.

The need of orthodontic treatment is the result of an abnormal growth or deviation from normal in the development of the arches and arrangement of the teeth. Therefore, to prevent such misdirected growth, it is necessary to review the normal development and study factors which may be the remote causes of malocclusion. If it is possible to diagnose the cause of an orthodontic case, it becomes the duty of every general practitioner as well as orthodontist to foresee the cause in others and prevent a similar occurrence.

In a brief and rather general way, let us review some of the stages through which the teeth and arches pass in their development, considering some of the natural forces that are so essential to their proper growth. We are taught that about the sixth week of fetal life the arches take form and the palate begins its formation, separating the oral cavity and nasal opening. At this time, there is a thickening of the epithelial cells over the future alveolar structure which is called the dental band or ridge. This band of cells lies on the crest of the ridge in a groove. A thin dental lamina or sheet of this epithelial tissue is given off to the lingual side in an apron formation. From ten points on this apron, epithelial cords begin their growth downward into the underlying connective tissue, where they take a bulbous form and later become the enamel organ. This occurs from about the seventh to the

* Read before the Section on Orthodontia at the Midwinter Clinic of the Chicago Dental Society, Jan. 25, 1928.—Journal of the American Dental Association.

eighth week of fetal life. The underlying connective tissue forces the underside of the epithelial bulb into a bell shaped structure and becomes the dental papilla or the dentin organ; this taking place about the ninth week. During these three weeks, a bone formation begins, with crypts separating each tooth germ into its respective compartments, and a fibrous tissue forms around the tooth follicle.

By the twelfth week, this fibrous sac has completely surrounded the enamel organ and dental papilla and the epithelial cord from which the tooth started its growth is severed. At this time, a bud of epithelial cells is given off from the severed cords to the lingual aspect of the follicle of the deciduous tooth. It is from this group of cells that the permanent teeth to follow begin their formation. All of the permanent teeth, with the exception of the molars, have their origin in the remnant of the cord of the deciduous teeth. The permanent teeth pass through the same changes in their formation that the deciduous teeth do in theirs. The first permanent molar has its origin in the dental lamina, as do the deciduous teeth. The second molar is formed from a bud of cells given off distally from the epithelial cord of the first molar; and the third molar, from the cord of the second. By the fourth month in the development of the fetus, the tooth germs of all the temporary teeth have been inclosed in their follicles and the enamel organs for the corresponding permanent teeth have begun their development.

About this time, the formation of enamel and dentin of the deciduous teeth begins. The enamel is laid down from different points on the occlusal surface and progresses in all directions. These points move farther apart with the formation of the dentin, their junction or fusing place often becoming an irregular or imperfect pit or fissure. It is in these resultant defects that flora of the mouth or lactic acid forming bacteria are sealed, until this imperfect layer of enamel is destroyed and the dentin is exposed to the effects of the acid, caries being the result. To this, we shall refer again.

At birth, the crowns of all the deciduous teeth are formed and lie in their bony crypts. The crowns of the four first permanent molars are almost completely formed. The follicles for all other permanent teeth, except the second and third molars, are present.

Up to this time, the delicate growth and formation of these

different cells and tissues have been dependent on the fetal circulation and the nourishment received through the blood of the mother. The growth has been, up until this time, mostly due to the force of the multiplication of cells and the expansion due to the size of the bone and dental organs.

At birth, the entire maxilla is a conglomeration of developing teeth; even most of the area which later becomes the maxillary sinus is occupied by teeth. The mandible is likewise a mass of more or less disarranged teeth and tooth follicles. The growth and formation of these organs to their full size before eruption necessarily causes an expansion and growth of the so-called jaw bones, which are to act as the foundation and alinement bars for teeth as they come into occlusion.

Let us consider some of the forces that directly or indirectly affect the growth of the arches; first, we might say the multiplication of cells in the tooth germ in that vascular area which forces the crown of the tooth outward as the dentin or root portion begins to grow. The root continues to form, forcing the coronal portion farther until, after the osteoclasts have removed the roof of the crypts, the tooth makes its appearance through the gums. As they extrude farther, a cancellous bone tissue follows the gingivæ, and thus occurs the development of the alveolar process, which gives upper and lower thickness to the two arches.

At birth, it will be noted also that the mandible is a horse-shoe shaped bone with hardly any angle. Without the teeth, the surfaces or crest of the ridges come in contact. During the eruption of the teeth, the angle of the mandible becomes more acute and the ramus begins to lengthen to compensate for the alveolar process and the length of the crowns of the teeth. Whether it is the erupting force of the opposing teeth striking which causes the need of a longer ramus or whether the ramus lengthens ahead of the striking of the teeth it is hard to say, but we know that there is a delicate harmonious synchronism necessary in their growth.

No doubt the muscular force has a great deal to do with the direction of growth of the arches, as exerted, for example, by the muscles of mastication, degultition and respiration. The constant passage of air through the posterior nasal openings has a tendency to expand that portion, while the lack of it tends to permit a closure through lack of development. It is

a well known fact that, in a mouth breathing child, the nasal openings do not develop.

During infancy, crying is a means of normal development. The act of sucking exerts a tremendous force in development of the arches. If a child were fed with a spoon from birth and not permitted to nurse, it would lack the development of those muscles and, indirectly, the bones to which the muscles are attached. In this day of artificial feeding of infants, great care should be exercised in the selection of nursing nipples. Most of the rubber nipples on the market to-day are from 1 inch to 2 inches long, which permits pressure too far back on the palate. The posterior part of the hard palate is forced upward and against the soft palate are exerted an unnatural force and irritation. The rubber nipple should as nearly as possible represent the shape and size of the mother's nipple.

"In all the process of development, the growth is the result of all the forces to which the bones are subjected, perfectly distributed through the substance of the bone." (Dr. Noyes.) These elements of force act much the same as orthodontic appliances in principle. Any lack of harmony of these forces will cause malocclusion to develop. The lack of growth because of a deficiency in cell food or the death of cells during an illness, or any deviation from a quiet normal life of the child, may be the primary cause of malocclusion. Usually, once a force is wrong, it affects the normal working of another, and the two affect others, until the condition grows from bad to worse, and later in life, the effects become visible. The stopping or correcting of malocclusion is not real prevention. Real prevention means anticipating and changing the condition that may cause the trouble before it has really begun.

The normal eruption of the teeth is an important factor in the growth of the arches. The two lower central incisors usually come through first, about the sixth month of age. As they erupt, the lateral incisors are in position distally to the central incisors, and distally to the lateral incisors are the cuspids. In this position, these teeth form a wedge, because, as the lateral incisors come through, there must be an expansion of the anterior portion of the arch to make room, and then the cuspid comes through, causing further expansion. Nature has used the same principle to continue this force in the eruption of the permanent incisors and cuspids to follow. Each molar, both deciduous and permanent, in erupting,

forces the body of the "jaw bones" forward to make room for itself. Often, by the time the third molars are ready to erupt, the growth of the bones is completed, and, owing to the lack of room, this molar does not grow into line but becomes impacted. If the arches are perfectly formed and in proper relation to each other, the tongue, lips and cheeks have much to do in the alignment of the teeth as they come through.

The eruption of the deciduous teeth is a physiologic process and should not be accompanied by any disturbance in the child's comfort and health. We realize that this statement is contrary to general opinion, and although conditions do arise during this period of the child's life which we are not able to explain, some of the best pediatricians agree that the troubles arise from faulty diet, infection of the intestinal tract and other irregularities, rather than from the natural process of tooth eruption, which is indeed a most delicate one. I believe that an orthodontia case might be prevented if any one or more of the following symptoms accompanying the teething of a child were recognized and the cause removed; namely, loss of appetite, irritability and restlessness, slight rise in temperature, diarrhoea, occasional vomiting, less than usual gain in weight, most of which may be attributed to some disturbance in the digestive tract.

As our observation and treatment of these patients is limited to the postnatal period, we are obliged to leave the care up to this time in the hands of the attending physician. At birth, our obligation begins. To prevent the need arising for correction later, it may be necessary to change a habit during the very first stage of infancy. It may be necessary to advise or refer the mother to a dietitian. Probably in a nervous fretting baby with disturbed digestion, the difficulties which so often follow as the teeth erupt may be prevented if the mother will refrain from waking the child from its needed rest to show it off to friends. Perhaps we would be justified in prescribing cod-liver oil or sunbaths each day to develop strong teeth and bones. Some malicious habits may be prevented by early advise. I have heard of cases in which the nurses in the hospital placed the child's thumb in its mouth before it was a day old because it had been their experience that a baby that sucked its thumb did not cry much. And the infernal pacifier is sure to come into a home through some well intending friend or relative if the parents do not get it themselves on the ar-

rival of the baby. It seems to be as common a gift as handkerchiefs and socks are at Christmas. Too much emphasis cannot be put on the effects of these unnatural forces in misdirecting the growth of the arches and associated parts.

When the little patient is presented in the office for examination, more attention should be given the natural elements or any deviation from normal, or, better yet, there should be more frequent recognition of conditions which may lead to a deviation from normal and latter cause malocclusion.

After the deciduous teeth are in their places, the arch must be watched closely to determine whether natural growth or expansion is taking place. It is good practice to take modeling compound impressions, to measure the development frequently over a period of time. If the spaces are not developing by the fourth or fifth year, there is something wrong, and the cause should be sought out and corrected. The source of the trouble may be rickets, tuberculous glands, infected tonsils or adenoids.

Since the most predominate immediate cause of irregularity of teeth and of malocclusion is the premature loss of the deciduous teeth, it behooves the dental profession to guard these first teeth from the ravage of caries. True enough, there is some reason why the teeth are of such nature as to yield to decay; but what has already happened we cannot change, and we must take advantage of the situation as it is. It is not my intention to go into the operative procedure of filling these cavities, but I shall try to point out some of the factors accompanying the decaying of teeth which affect the growth of the bones and the erupting teeth to follow.

Suppose caries should begin between the first and second deciduous molars. The decay progresses, causing an unhealthy condition in that localized area and thereby poisoning the contents of the entire mouth. The contact points are soon destroyed, and although the roots are in their sockets, there is a drifting forward of the posterior molar to the extent sometimes of a millimeter. If this condition is permitted to develop, the caries nears the pulp and the tooth begins to be painful to mastication and naturally is shielded from that function. We have learned that functioning of a part is one of the main stimulants to growth. The pulp dies and the area becomes an enclosed source of infection which does not permit the healthy circulation necessary for growth. And there is also danger

of migration of this infection through the child's system. It is thought by some writers that the roots of devitalized deciduous teeth do not absorb as readily as if alive and healthy. If so, this may affect the normal position of the erupting bicuspid.

In case of premature extraction of a deciduous tooth, the healing of the socket tends to contract rather than expand the space. The bone formation in the socket is a hard scar tissue rather than the normal cancellous process. The permanent teeth do not have their path of least resistance to follow by the absorption of the roots of the deciduous teeth, but on the contrary, have abnormally hard tissue to break through. Consequently, they most often erupt slightly rotated or a little out of alignment.

The deciduous teeth have an important function to perform. They come into place as the child becomes old enough to take foods requiring chewing. Through the function of mastication, they promote the development of the bones. As long as the first teeth are in normal occlusion, the force is evenly distributed throughout the area. Any deviation or malocclusion will misdirect these forces and may be the beginning of a severe orthodontic case later in life. Each deciduous tooth has its permanent successor and should be retained in place in a healthy condition until time for its successor to erupt.

Nature has provided a method of changing from the deciduous to the permanent set of teeth without the loss of function and stimulation of the growth of the bones by proper mastication. The first permanent molar comes through into position and is ready for use before any of the deciduous teeth are lost. While the central incisors are erupting the deciduous lateral incisors and cuspids are functioning. By the time the deciduous lateral incisors are lost, the permanent central incisors have erupted. While the first bicuspid is taking the place of the first deciduous molar, the second deciduous molar and first permanent molars are in use. While the second bicuspid and cuspid are erupting, the first bicuspid and first permanent molar are in place. Therefore, if the teeth and arches have developed normally and been retained in good condition, there should not be any period of development in which function and resultant growth are lacking. These are the normal developments from which any deviation may be the beginning of mal-growth and, later, malocclusion. This has been demon-

strated in the laboratory by extracting the teeth on one side of the jaw of an animal and forcing all the masticating of food to the other side. The used side grew to normal size, while the other remained undeveloped.

As the teeth erupt and take their positions in normal occlusion, the inclined planes or lateral surfaces of the cusps of the upper teeth are in contact with the corresponding surfaces of the lower teeth. There are more than 100 lateral surfaces in a full complement of teeth and most of these are in contact with another in normal occlusion. The mesio-surface plane of the upper molar rests against the distosurface plane of the corresponding cusp of the lower molar. Every tooth is directly in contact with four other teeth, with the exception of the four third molars and the two lower central incisors. The movement created by the normal contact of the inclined planes acts as a stimulant to the circulation of blood through the periodontal membrane. The pressure is equally distributed. Any deviation from the normal relation of the planes causes an unequally distributed pressure and, in turn, traumatic occlusion and a misdirected growing force.

The orthodontist tries to restore the normal striking of the inclined planes by expanding the arches and regulating the teeth. He also has the problem of retaining them in position. Certainly we must commend the men of this specialty for the very highly developed degree of skill and precision with which they work. While they are doing their service in corrective work, it is the duty of every practicing dentist to befriend the child patient by rendering him preventive service.

The little patient must be made to feel that he is the most important patient that comes into the office. He must be led to believe that those teeth are there for a purpose, and it is his part and ours to keep them in the very best condition. He must be taught something of the nature of the materials of which the teeth are made; that the main body of the tooth is called dentin and is like bone; that the outer shell of the tooth is called enamel and is very, very hard; that if he forgets to brush his teeth, food may lie against the enamel in a deep groove until it breaks through and reaches the nerve within. All the ill effects which may follow must be explained to him. It should be seen that this information reaches the parents.

Along with the education of the child and parents goes emphasis on the importance of frequent visits to the office.

Nor should any arbitrary rule concerning the interval of time between these visits be made. It might be necessary for one child to be examined every three months, another twice a year; while a third one should be seen every two or three weeks. At these intervals, there should be a thorough cleaning and examination of the teeth. If any marked grooves and pits are found in either the permanent or the deciduous teeth, they should be sterilized and filled by flowing a thin mix of copper cement or some like material into them. This is especially indicated in the first permanent molars as they erupt in a mouth that has been susceptible to caries. At the time of the extraction or loss of the second deciduous molar and before the second bicuspid erupts, the mesial surface of the permanent molar should be perfectly polished. This may prevent that most common cavity, which comes a little later and quite often causes the loss of the tooth.

It cannot be overemphasized that each deciduous tooth should be retained in good health in its place until the permanent tooth to follow is ready to erupt.

When the child has passed the age for the normal change from the deciduous to the permanent teeth, it is well to ascertain by the roentgenogram whether the permanent teeth are in position, and, if they are, to extract the deciduous teeth. But I would say, never extract until the roentgen-ray picture or other evidence shows the presence of the tooth to follow.

CONCLUSION.

It is not my intention to leave the idea that every orthodontia case can be prevented. Far from it. Inherited tendencies are not governable. Advice may be conscientiously given but is not always heeded, which makes our efforts toward prevention an educational problem. Even lack of co-operation between the physician and the dentist may be an inhibiting factor. And yet I am of the opinion that if we keep in mind the natural forces in these stages of development and see that they were not misdirected, many a case calling for orthodontic treatment may be prevented.

“The faults of our brothers we write upon the sands—their virtues upon the tablets of love and memory.”

Causes of Failure in Amalgam Work and How to Avoid Them*

DELOS L. HILL, D.D.S., F.A.C.D., ATLANTA, GA.



WISH it were possible to prevent some absolutely authentic figures which would lead us to a correct conclusion as to the percentage of amalgam restorations in the total number of dental operations by the dentists of the United States over a given period of time. You will realize that if one attempted to arrive at such a percentage covering the scope of the dental profession in America, most of the conclusions would be based on estimates and, as a consequence, have no scientific value. Necessarily, the percentage of amalgam restorations in the total number of dental operations will vary greatly in different sections of the country. The only tabulation which I have been able to find was made by James Mark Prime,¹ of Omaha, and given to the Chicago Dental Society in 1921. While he stated that most of his information was gained from cities, and presumably a large proportion was in the Middle West where gold foil is so well manipulated by many outstanding dental practitioners, of a total of 28,279 cases reported on, 9,623 were amalgam restorations.

In view of the dental conditions obtaining in that section of the country, if we take into consideration the great working class of people in manufacturing, railroad and mining centres, in whose mouths hundreds of thousands of amalgam restorations are made annually, as well as those living in the outlying districts of our country, it will be found, I am constrained to believe, that at least 50 per cent. of the dental restorations are made with amalgam. It behooves us, therefore, to take stock of our efforts in this particular line, to ascertain whether we are placing in the mouths of our patients amalgam fillings which will remain nonleaking and stable.

1. Prime, J. M.: Relative Merits of Our Principal Filling Materials as Shown and Used To-day, J. N. D. A., 9:9 (Jan.), 1922.

* Read before the Section on Operative Dentistry, Materia Medica and Therapeutics at the Sixty-Ninth Session of the American Dental Association, Detroit, Mich., Oct. 26, 1927.—*Journal of the American Dental Association.*

CAVITY PREPARATION.

In view of the fact that the immortal work of G. V. Black² on cavity preparation has been recognized for so many years by the dental profession, it is almost inconceivable why dental operators will proceed absolutely contrary to such a recognized authority. J. V. Conzett stated some years ago that our failure to follow these principles and the definite technique which they require constituted the greatest single factor in the failure of amalgam fillings. Fortunately for the operator and for the public, the dental educational institutions of this country are laying a great deal more stress on cavity preparations than ever before; which will have a tendency to produce men who fully realize the importance of giving the proper attention to every step of every amalgam restoration.

In view of the fact that Dr. Black's cavity preparation is so well known, it is not necessary to go into details in reference to amalgam work.

The investigations of William E. Harper,³ of Chicago, covering a period of seventeen years with the air pressure test for adaptation in laboratory and clinic tests, made by representative amalgam operators throughout the country, demonstrated that more than 90 per cent. of the amalgam fillings made in the above-mentioned test would leak as soon as air pressure was applied from within; that 40 per cent. of these fillings showed defects large enough to be apparent to the naked eye, and that, since these leaks occurred almost immediately after the fillings were placed, they were the result of operative faults and not of shrinkage and expansion. A good amalgam filling which does not expand or contract after being completed can be made, provided a high grade alloy, properly mixed, inserted while sufficiently plastic and condensed so that there is no excess of mercury in the mass, is used.

The cause of our failure in amalgam work is due to the lack of care in carrying out one or more of the foregoing requirements, provided we have the proper cavity preparation.

AMALGAMATION.

If we realize that there is no shrinkage nor expansion in amalgam fillings properly made with copper amalgam, be-

2. Black, G. V.: *The Physical Properties of Silver, Tin, Amalgam.*

3. Harper, W. E.: *Amalgam: Its Working Peculiarities and Its Operating Demands*, J. A. D. A., 13:1119 (Aug.), 1926.

cause of the process by which copper amalgam is manufactured, it is reasonable to expect that all shrinkages and expansion in a finished filling are the result of incomplete amalgamation during mixing and that this shrinkage or expansion can be overcome by sufficiently complete amalgamation during mixing. No movement can take place in a finished filling if amalgamation is made complete in the mortar, and, if we have no secondary amalgamation, we can have no secondary expansion or shrinkage in the complete filling sufficient to disturb adaptation.

Mixing in a mortar requires from two to three minutes, depending on the amount of the mix. The same mix can be made in one of the electric amalgamators in from one-half to one minute, and as the future action of the finished filling depends, to a large extent, on the proper mix, careful attention should be given to it.

Although the difference between a workable and an adaptable plasticity has heretofore been stressed by Harper in his work along this line, I do not hesitate to again call your attention to this important point. While a quick-setting alloy is workably plastic for from five to six minutes, it is adaptably plastic for a very much shorter time—say from two to three minutes—and if an operator is unable to place the amalgam properly in that length of time, he should use a medium-setting alloy or mix a quick-setting alloy so as to be more plastic. Of course, the excess mercury, which is necessary to make a more plastic mass, will be readily removed by a correct technique of condensation. While we may make amalgam fillings to perfect anatic form—fillings which will stand up under the stress applied to them—using amalgam while it is still in a state of workable plasticity, there is no doubt that if we expect to make a nonleaking filling, we must confine ourselves to amalgam in a state of adaptable plasticity.

VOLUME CHANGES.

Up to less than two decades ago, it was generally understood and accepted by the dental profession that all amalgam would either contract or expand on setting. It was one of the efforts of the manufacturers of alloy for dental purposes to control this secondary amalgamation or the volume changes which would take place after the restoration had been placed.

Of course, we recognize that this first amalgamation of

silver and tin with mercury, in the mortar or amalgamator, is accompanied by a contraction of the mass; and it was stated by McBain and Knight⁴ at the Sixtieth International Dental Congress, London, 1914, that every case occurring in dental practice must be intermediate between no volume change and the extreme changes indicated in the table exhibiting the results of their calculations, which implied that an amalgam tooth filling always contracts. This was contrary to general observations of those who had studied dental amalgam during hardening, which depended on the composition or physical treatment, or both. While we are not interested from a practical standpoint in the contraction of the amalgam mass before it is inserted in the cavity, we are vitally interested in overcoming any changes which may take place in this mass after it is placed in the cavity, and I am constrained to believe that Harper has done more to raise the standard of amalgam fillings than any man in our midst.

ABSOLUTE ADAPTABILITY.

If we expect to make satisfactory amalgam restorations—restorations which will remain satisfactory—the amalgam must be in absolute adaptation to the cavity walls, and this can be attained only by working the amalgam very gently, while it is very plastic, to the walls of the cavity. No pressure should be exerted in this procedure. It will have the same effect as jarring very plastic amalgam, with which we are all familiar in the making of amalgam dies. After this adaptation is made, it is condensed with less plastic alloy, with an orderly applied force sufficient to express the excess of mercury, which adapts the amalgam to the cavity walls with pressure contact.

CONDENSATION.

If we wish to express the excess mercury from amalgam and thereby prevent a secondary amalgamation, which is fatal to amalgam restorations, we can do so only by an orderly applied force sufficient to bring this mercury to the surface. It has developed that at least 10 pounds pressure, applied in an orderly manner, is necessary to be sure of the expulsion of the excess mercury together with such unattached tin as may be present, and to insure pressure contact with the cavity walls.

4. McBain, J. W., and Knight, W. A.: Report on the Chemical Constitution and Physico-Chemical Properties of Dental Amalgam.

Investigation along this line shows that, in a limited area, more than 50 per cent. of the average dental practitioners use less pressure. While these investigations may not be absolutely accurate, when certain dentists are attempting to condense amalgam with a pressure of 5 or 6 pounds, I am sure that these restorations are doomed to failure.

Packing should be done in an orderly manner, using all the force of the fingers, starting at the centre of the filling, gradually working toward the margin and covering the space less than the diameter of the plugger at each pressure point. This will force the excess mercury to the more plastic area, bringing it eventually to the surface, where it will cling to the plugger and can be easily removed.

The failure of this complete condensation and pressure adaptation at the cavity walls is disastrous in its results, looking to the permanency of amalgam restorations.

SUMMARY.

If we would produce a stable amalgam restoration, we must give due attention to (1) cavity preparation; (2) use of high grade alloy; (3) proper amalgamation; (4) adaptation of plastic amalgam to the cavity walls, and (5) proper condensation.

I am indebted to W. E. Harper for the basic principles of the technique above referred to, by which I have been able to overcome some of the causes of my failures in amalgam work.

The Value of Gold Foil in Modern Practice*

C. N. JOHNSON, D.D.S., CHICAGO, ILLINOIS.



If the romance of dentistry is ever written, gold foil will be one of the leading characters. If the story of dentistry's service to humanity is ever told, gold foil must be given the major credit for this service. If the palm is ever yielded to dentistry for the development of an unusual technical superiority over other professional callings,

*Read before the Section on Operative Dentistry, Materia Medica and Therapeutics at the Sixty-Ninth Annual Session of the American Dental Association, Detroit, Mich., Oct. 26, 1927, Journal American Dental Association.

gold foil must be accorded the chief honour. If the source is sought for the outstanding achievement in saving the natural teeth after they are attacked by decay, gold foil must claim its full share in this beneficent function.

Thus, when any adequate consideration is given dentistry, gold foil must be acknowledged as a prominent factor in its development. Never has any one material so signally stamped its individuality and superiority on any calling as has gold foil on dentistry.

Then why are we to-day presented with the spectacle of the almost total eclipse of foil in the dental firmament? Why do we find men who admit, or rather who claim, that they never use gold foil, men who boast that they have long since discarded their gold pluggers? In view of the acknowledged service of foil in the past, the present tendency is something to be taken into consideration. There is little to be gained by blinking at a fact when it confronts us, and this is a fact of such proportion that we cannot ignore it. It is said that there is a reason for everything under the sun, and so there must be a reason for the change that has come over the profession in its attitude toward gold foil. Let us look somewhat carefully into this reason.

Is it due to the fact that gold foil has lost its virtue as a filling material? Is it not possible to do with foil to-day what the masters did with it years ago? Do the manufacturers not prepare their foil as well as they formerly did? I have on many occasions made the statement, which I now repeat, that there never has, in the alchemy of nature, been a material produced that will so surely save a tooth as a well adapted, well inserted, well condensed, well contoured and well finished gold foil filling. This fact holds as true to-day as ever it did. Foil has not lost its virtue, nor has the manufacturer failed us.

But something inevitable has entered into the situation, and whatever is inevitable must be reckoned with—it cannot be ignored. The introduction of inlay work, rightly or wrongly, came very near to sounding the death knell of foil. The only reason that it has survived at all is because of its intrinsic merit, which nothing in the way of allurements or propaganda could quite overshadow. In looking into the reasons why inlay work came so near to eliminating foil from dental prac-

tice, we will discover several contributing factors, and at least one of these takes us outside the profession. No consideration of this subject is complete without facing that great sublime entity known as our patients; and it is hardly stretching the point to say that our patients summarily took the matter out of our hands, by waving foil aside and beckoning inlays in.

To my mind, the great outstanding limitation of foil is the hardship on the patient. This appeals to me far more than the plea of a hardship on the operator. I have never been much impressed with the hue and cry against gold foil on the theory that its use was too exacting on the operator. The very exactions accompanying its use have been the means of developing a skill among dentists which has brought to them the admiration of the world, and without which the profession would never have achieved what it has. To-day, there is as great a need of skill as ever; and on this ground alone, if for no other reason, every dental college which aspires to teach students properly should demand as a requirement for graduation a large volume of gold foil operations. It is senseless to claim, as some are trying to do, that an adequate training in finger craft may be obtained from the technique of inlay work. It never has and it never will. There is something about the manipulation of gold foil that brings out the essence of expertness as does no other operation in dentistry. Those who shirk this inevitably lose something for which no amount of effort in other technical procedures can ever compensate. One does not have to stretch one's imagination very far to experience in the manipulation of gold foil a spiritual uplift which sanctifies the operator and makes of him a better dentist and a better man. I once heard a practitioner remark that every operator should insert at least one large gold foil filling at frequent intervals for the moral effect on him; and I am sure that those who have had the pleasure of using foil extensively will at once recognize the inference. To begin with, gold foil demands cleanliness, and this in itself is a supreme virtue in dental practice. Then, it demands exactness and precision, and these are also cardinal requisites for the best service. It demands concentration, and no great work is ever accomplished without concentration. As a source for training of the hand, eye and brain, there is nothing in dentistry to compare with this material, and no student is ever adequately

equipped to go out to practice dentistry who has not had a thorough drilling in the manipulation of gold foil. Instead of being a hardship to the operator, the use of foil becomes one of the most delightful and pleasurable of all operations to the man who is expert in its manipulation.

Therefore, the contention is here made that we are not doing our duty by students unless we compel them to master the manipulation of foil. Even if, as some declare, these students, when they get out to practice, will use inlays to the exclusion of foil, the fact remains that the training they have had in the use of foil is one of the best means of preparation for technical procedures of any kind. There is no question that a student will be a better operator in every respect; he will make better inlays, better amalgam fillings, better crowns and bridges, he will prepare cavities better and do all kinds of operations with greater facility and precision if he has had a thorough training in gold foil. If the manipulation of foil was not an important factor in an operator's ability, our state boards would not continue to demand it as a requisite for licensure. Every thinking man in the profession will agree that the boards are wise in making this one of the chief requirements, and it will be a retrogressive step if they ever abolish it.

There are two considerations which seem to me largely accountable for the change on the part of the profession from foil to inlays—the hardship on the patient when foil is employed and the saving of time with the inlay. Let us look the facts squarely in the face; there is no question that a foil operation of any size exacts of the patient a greater toll in the way of nervous energy—to say nothing of the actual pain—than does a similar operation with an inlay. There is no avoiding the issue, and no argument in this matter. A patient who has once had an inlay inserted will never submit to a long foil operation again; and probably you and I should feel the same if we were the patient. As far as the relief of tension is concerned, the inlay came as a distinct benefaction to people who had to have teeth filled, and this was so instantly recognized by every one that it became the chief factor in the landslide to inlays. Argue with people as we may about the greater permanence of foil over inlays, our argument falls on deaf ears when the tedium of a foil operation looms before them. They have tasted blood, and we cannot feed them a stone.

Not only this, but there is a decided saving of time to patient and operator in the inlay method. The sittings are shorter and much of the technical procedure may be done by an assistant or even by the operator himself in the absence of the patient. Altogether the process of inlay making is so devoid of stress compared with a foil filling, there is little wonder that it has made such a widespread appeal.

In addition to this, the operator may easily manage more cavities in a given number of sittings with inlays than with foil, and thus he can render more service in a stated period of time. He can care for more patients in a day because the sittings are shorter, and, in brief, he can turn out a greater aggregate amount of work because so much of it is done in the laboratory.

All of this, of course, applies to operations of appreciable size, and it is at this point that a vigorous protest must be made against the prevalent tendency on the part of many in the profession to resort to inlays in all classes of cavities regardless of size or condition. Not till our operators recognize the virtue in every process and accord to each method its legitimate field will the best service be meted out to the people whom we serve. It is just as much an aberration for an operator to discard gold in many of the smaller cavities as it would have been to ignore inlays when they were introduced and subject the patient to the tedium of a long and painful foil operation in the distoclusal surface of a second or third molar where half the crown must be restored. When we hark back to the days in which we made such operations in foil and recall the tension and discomfort involved, we are impressed with the utter folly of subjecting our patients to-day to such a procedure; and it is equally foolish to lean the other way and use inlays in small cavities where there is neither a saving of time nor stress, and where the result can never be as good as with foil.

Therefore, when we are called on to consider the value of gold foil in modern practice, we must insist on its use in all pit and fissure cavities wherever found, and as these constitute an appreciable percentage of the cavities occurring in the teeth, it will be seen what a large field there still remains where foil is clearly indicated. To use inlays in the cavities mentioned is not only ill advised but is also a waste of time. These cavities can be filled with foil in less time than inlays can be made for them, and there is no comparison in the results. To

make inlays in many of these cases, it is necessary to cut the cavity much larger than for foil, and the technique for these small inlays is much more difficult than for large inlays, and certainly than for foil. In general, the smaller the cavity, the greater the indication for foil, and the larger the cavity, the greater the indication for inlays. There is another factor also which must be considered. Some patients are more manageable than others, and will submit to foil operations with better grace. A great deal hinges on this. If a patient is amenable to control, foil may be used in many cases in which otherwise it would be a mistake to attempt to use it. The day is past when dentists can afford to subject patients to an unreasonably amount of discomfort, or to unreasonably long sittings. The nerves of patients are more acutely tuned to-day than they were a decade ago, and this fact must be reckoned with. In this, we are confronted with a condition and not a theory. It is folly to attempt a long and exacting operation with a patient whose nerves are so highly strung that it is impossible to maintain any control, and the result is usually not only exhaustion to patient and operator but also a very indifferent operation.

The reaction to these things in our patients is changing, and while some operators with more magnetism than others are able to obtain better co-operation on the part of the patient, the fact remains that the rank and file will seek a dentist who does not subject them to too great discomfort.

In addition to the cavities mentioned, there is another class of cases in which as far as utility is concerned, gold foil has no rival. In proximal cavities in incisors, there is no other operation which will yield the permanent results that foil will. I have had the pleasure of seeing foil fillings in the proximal surfaces of incisors which had been doing good service for more than sixty years; and in these cases, there is no possible dream of the imagination that could have accorded to any other material this tenure of service. But here, again, we find ourselves confronted with an "if." If we can keep these fillings from showing, our patients will permit us to use them; otherwise, they will not. There are certain individuals in whose teeth the exposure of gold is not conspicuous or objectionable, and, in these cases, foil should be used. In the mouths of blonds, gold is seldom noticeable, and where utility is paramount to appearance, there can be no question of the advantage of gold over other materials.

Proximal cavities present something of a problem. If there is any place where gold inlays are unsatisfactory, it is in these cases. Any attempt to employ them usually results in imperfect margins unless the tooth is unduly opened into a large cavity. Porcelain inlays at one time promised a satisfactory solution, and many of them did good service; but if we are to judge of their utility by the extent to which they are used to-day, we must conclude that they have been more or less disappointing. The silicates have had their advocates, and undoubtedly there is a place for them, although this place is very limited, and as far as permanence is concerned, they cannot be mentioned in the same breath with gold foil. In short, no other material has, up to this time, afforded us the same assurance of prolonged service in in these cases as foil, and if the patient is more desirous of saving the teeth than of catering to esthetics, there is only one choice.

To summarize: The value of gold foil in modern practice is found in its application to such cases as pit and fissure cavities, to all cavities in the molars and bicuspid where access is not too difficult and where the tension is not too great on the patient—in other words, where a good technic may be obtained without undue stress—and to all cavities in the anterior teeth where esthetics may be sacrificed for utility and length of service.

With a full recognition of the exceptions to these cases, there still remains a wide field for the legitimate use of foil, and to ignore its use under its proper indications is to fall far short of the best service to the patient. As has already been said, there is no material as reliable as this, and to discard it because of its exactions or its few limitations, in the face of its manifest and manifold virtues, is either to ignore unlimited opportunity for the best service, or to shirk supinely an insistent and moral responsibility.

DISCUSSION.

Perry F. Gilbreath, Kansas City, Mo.: No one can deny that the greatest piece of art, demanding the greatest skill in dental operations, is the gold foil filling. It has stood the test of time and, without question, is one of our most valuable assets as a filling material. It has developed a manipulative skill in cavity preparation and handling filling materials as nothing else has. The best operators that our profession has produced have used it extensively for over a half century. To condemn it or even to doubt its merits would

almost be equal to destruction of the very foundation on which our present day conception of operative dentistry is built. Nevertheless, with all its superior characteristics of durability, technical training, tooth preservation, etc., that inevitable something has brought about a change in present-day operative procedure in restoring decayed teeth. Gold foil, as everyone will admit, has, to a large degree, been relegated to secondary place and, with many dentists, has been entirely discarded as a filling material. The reason for this condition Dr. Johnson has very plainly explained, and in his diplomatic manner he is considering the position of the dentist, and especially the man who is trying to render the public the most efficient service that dentistry can produce. He also views the situation from the patient's standpoint, which is very important. Dr. Johnson's years of experience as a practitioner, teacher and writer qualify him to speak plainly and to warn us against shirking our responsibility in conserving tooth structure and giving to those entrusted to our care the best service that we are capable of rendering. He states that there are two considerations causing the desertion of the foil filling, one the hardship on the patient in inserting foil gold, the other the saving of time, both for operator and patient, resulting from use of the inlay. I confess that in my own experience, these two factors have governed me in many decisions as to what I would use, even though the patient was willing for me to select the filling material that I considered best for the individual case. This especially applies to the proximal cavities in the anterior teeth and the pit and fissure cavities in the posterior part of the mouth. It is in these teeth that Dr. Johnson upholds the use of foil gold. His statements are clear and well founded when he says that the use of gold inlays in small or medium size pit and fissure cavities is not only ill advised, but also a great waste of time and loss of good tooth structure. Dr. Coston once said in discussing this subject, that a man with a very large practice was asked if he used gold inlays. He said that he did, then he was asked how he used them; he answered "Exclusively." He then was asked how he used them in small fissure cavities, in bicuspid and molars. His reply was that he cut out the cavities until they were large enough to put an inlay in them. This is no doubt true of many practitioners, men who are conscientious about their work, but have allowed themselves to fall into the procession, placing inlays in every cavity coming to their attention. Gold inlays hold a very important place. Many honest skilful men have spent hours developing a technique that has brought the inlay to its present high standard, where it saves many teeth that would otherwise be lost or the surrounding tissues impinged by the gold crown. I believe that, generally speaking, approximal cavities in the bicuspid and molars can be handled with a greater degree of satisfaction, to both operator and patient, by the gold inlay than by any other filling material, except where too much tooth structure is

cut away for removal of the wax pattern. In that case, gold foil or amalgam is indicated, as also in the gingival third cavities in the same teeth, and, I might add, in very large occlusal cavities in the molars. Alloys, porcelain inlays and silicates have their place in restorations. It would be hard to practice dentistry without them. Just where the line should be drawn is the question. In considering the anterior teeth, esthetics has come to be an important factor. As long as there was no other material to fill these teeth with, our patients were contented with the gold filling, but since the introduction of porcelain silicates, their wishes have to be considered. Just as these patients refuse to endure long foil operations, they likewise refuse to have the conspicuous gold in the front of their mouths. With all the argument that it is an inferior substitute, they still insist that a material be used that is in harmony with the color of the tooth, even though it is necessary to replace it at frequent intervals. I agree that the places for the present silicate materials are very limited and in no way can they be mentioned in the same breath with gold foil when it comes to permanency. I cannot refrain from raising the question: Are we who are engaged in the science of practicing and teaching health preservation giving our conscientious service or are we allowing the dental manufacturers and temperamental public to dictate what we should use in filling teeth? I appreciate the fact that the dental manufacturers have done a great deal for the dental profession in producing various materials that are most worthy. They no doubt have given their best efforts to develop a filling material that meets all the requirements, but until they succeed we should cling to that which we know is the nearest to the ideal. We cannot be guided entirely by any set rules or methods of procedure, but must be guided largely by circumstances and the exercise of our best judgment. If we are going to use the silicate materials, we should acquaint ourselves with their characteristics and develop a skill in their manipulation that will assure their greatest efficiency. Silicate, like the long abused amalgam, can never rank very high until an existing technique is properly carried through. I agree regarding teaching dental students the technique of manipulating gold foil. It is vastly important that dental colleges continue the full measure of instruction in the use of gold foil and not diminish the number of such operations required of students. I believe most colleges are fulfilling these requirements by giving extensive training in placing gold foil fillings and are doing so at a great disadvantage in comparison to the time before the gold inlay and silicate materials. The dental student is not sufficiently interested in making gold foil fillings, largely because of the outside influence of the practicing dentist. With all the enthusiasm and pressure that is brought to bear from the Dental Educational Council, college officials, faculty members and infirm-ary demonstrators on the importance of this training, the

student is still uncertain as to its necessity, otherwise than to make his grades. Dental students, by the time they have reached the senior year, have friends and acquaintances among dentists; some spend their vacation periods in dental offices, and it is only natural that they see and know what kind of operations are being done. The student visits other offices and discusses with the dentist gold foil fillings, and finds that there is no such thing in his office. The most distressing thing of all, the dentist is indifferent toward gold foil and refers to it as being out of date. The colleges have a great responsibility, but there is also a responsibility resting on the shoulders of every man practicing ethical dentistry. They owe it to these students to encourage them to take advantage of the opportunity to develop that skill in finger craft in making gold foil fillings by which they will increase their manipulative skill and be better prepared for other more highly complicated technical procedures. I am glad that Dr. Johnson placed so much emphasis on college training. It not only stimulates those who are attempting to teach cavity preparation and gold foil operations, but should be an incentive to each and every dentist to co-operate with the college to perpetuate the art of manipulating the peer of all filling materials. The gold foil filling is by no means becoming extinct. There are many capable men throughout the country making foil fillings to-day, faithfully and loyally maintaining the high standard of their restorative operations and preserving the health of the patients' teeth. Too much credit cannot be given these men for their endeavors to uphold the high standard and teach others to do likewise. Quoting from Dr. Woodbury, "There is nothing about the manipulation of gold foil that cannot be acquired by any one whose natural gifts fit him to practice dentistry. With the mastery of gold foil technique, goes the desire to develop fully the ability to restore tooth form and function in all its phases." Gold foil has not lost its virtue. There is still a place for it. Some may ignore its use, but I feel that the dentist who is endeavoring to give his best service to his patient will continue to use gold foil fillings where they are indicated.

William Finn, Pittsburgh, Pa.: We all acknowledge that the gold foil filling, when properly made, is the **best** kind of filling, and one of the poorest when not properly made. I think the last part of that sentence presents one of the reasons why so many make inlays in nearly all cavities. It is because of a lack of technical ability so much needed in making these fillings that they are abandoned. This technique should be taught in the dental school, but we cannot expect the student to be a finished workman; it is this desire drilled into the student that makes him look for more knowledge, and hence, a study club where this technique is developed in its highest sense. I do not wish to be understood that I would make gold foil fillings in all cavities; that is impossible because of lack of access, the size of some cavities, the inability of the patient to stand mallet-

ing because of looseness of the teeth or ill health, the impossibility to adjust the rubber dam in such cavities as the gingival third, which are far below the gum tissue, and many other reasons. The lack of access is one of the chief reasons; there are many places where the line of force cannot be obtained. I do not quite agree that patients waived the foil aside and beckoned the inlay in. Of course, they seconded the motion, and had much to do with carrying it, but the operator is the one who made the motion and saw that it was carried out. **For what reason?**—lack of knowledge and ability, laziness and a lack of a desire to do the best for the patient.

Dominion Dental Council Examination Results

THE following have passed the Dominion Dental Council Examinations, held during September, 1928, on the following subjects:

Orthodontia, Jurisprudence and Ethics—Langstroth, R. S.; McLaughlin, K. E.; Washington, L. A.

Orthodontia (only)—Deagle, M. A.; Lindsay, J. C.; McBrien, J. M.; Prestien, S. L.; Snow, C. M.; Wetmore, S. K.

Jurisprudence and Ethics (only)—Davies, O. J.

Anatomy—Deagle, M. A.; Dinsmore, G. W.; Hudson, V. F.; McLeod, G. C.; McBrien, J. M.; McLaughlin, K. E.; Moffatt, H. F.; Taylor, O. C.

Anaesthetics—Prestien, S. L.; Washington, L. A.

Pathology (only)—Davies, O. J.; Siebert, W. J.

Bacteriology (only)—Clark, H. E.; Dinsmore, G. W.; Hill, D. J.; MacLeod, G. C.; Taylor, O. C.

Pathology and Bacteriology—Buffet, L. L.; Cragg, T. E.; Langstroth, R. S.; MacLean, J. D.; McLaughlin, K. E.; Miller, F. L.; Prestien, S. L.; Snow, C. M.; Sullivan, C. A.; Thorpe, R. C.; Washington, L. A.; Wetmore, S. K.

Materia Medica and Therapeutics—Buffett, L. I.; Cragg, T. E.; MacLean, J. D.; McLaughlin, K. E.; Miller, F. L.; Oldfield, S. K.; Prestien, S. L.; Snow, C. M.; Sullivan, C. A.

Physics, Chemistry and Metallurgy—Hill, D. J.; Hudson, V. E.; McKee, A. D.; McLaughlin, K. E.; Thorpe, R. E.

Physics and Metallurgy (only)—Deagle, M. A.

Materia Medica (only)—Clark, H. E.

Physiology and Histology—Deagle, M. A.; Dinsmore, G. W. H.; Hill, D. J.; Hudson, V. F.; Macleod, G. C.; MacLean, J. D.; McKee, A. D.; McLaughlin, K. E.; Sullivan, C. A.

Histology (only)—Buffett, L. L.

Prosthetic Dentistry, etc.—Davies, O. J.; McLaughlin, K. E.; Prestien, S. L.; Sullivan, C. A.

Medicine and Surgery—Davies, O. J.; McLaughlin, K. E.; Prestien, S. L.; Snow, C. A.

Operative and Preventive Dentistry—Davies, O. J.; McLaughlin, K. E.; Prestien, S. L.; Snow, C. A.

Outline of Steps in Full Denture Construction

R. O. SCHLOSSER, D.D.S., CHICAGO.

1.—CASE HISTORY. Explanation: Answers to the following questions should be secured and recorded to enable the operator to understand the conditions confronting him to assist him in formulating a prognosis.

- (a) Has the patient worn dentures?
- (b) If so, how long?
- (c) What success or trouble has he experienced with them?
- (d) When were his last teeth extracted?
- (e) Which teeth were extracted last?
- (f) Has the patient worn any bridges or partials?
- (g) How long has the patient been without the mandibular bicusps and molars?
- (h) How long has the patient been without either natural or artificial teeth?
- (i) What experience have your friends or relatives had with dentures?
- (j) By conversation and observation ascertain the patient's mental attitude.
- (k) If the patient presents himself prior to extraction of teeth, impressions and facial dimension records or photographs should be taken, casts should be made and these details should be recorded as part of the history.

2.—DIAGNOSIS. Explanation:

(a) Check up for presence of pathological lesions and learn to differentiate between these and conditions following recent extractions. Pathology must first be eliminated.

(b) **Tissue Classification:**

1.—Resilient, i.e., elastic or possessing the ability to yield under pressure and of resuming its normal form and position upon release of said pressure. (This is the most favourable type.)

2.—Less Resilient: found in areas that have been long edentulous and in the central portion of the vault.

3.—Soft, movable or connective tissue: found along the alveolar border, subject to displacement. Care should be exercised while taking impressions to avoid folding this tissue under the impression.

4.—Flabby or Spongy Tissue: most frequently found in mouths irritated by bridges or ill fitting dentures in which the alveolar process has been resorbed, the spongy tissue retaining the original form of the alveolar ridge. In moderation surgical treatment may be resorted to, but the age of

the patient, possibility of shock and the encroachment upon blood vessels and nerve supply should be given serious consideration.

(c) Location of Muscular Attachments:

No cutting is advocated, excepting in cases of close attachments which may be due to former surgical procedures. They are classified according to their proximity to the ridges as follows:

(1) Close; (2) Intermediate; (3) Distant.

(d) The following observations to be made from the study casts as well as during mouth examination:

1.—Arch Form. Square, Tapering, Ovoid or Modification.

2.—Ridge Form. (a) Normal. (b) Deviation from Normal: Irregularities, Prominences, Undercuts.

3.—Jaw Size: Small, Normal, Large.

(e) Classification of the Ridge Relation according to Angle:

1.—Normal.

2.—Orthognathous—mandible retruded.

3.—Prognathous—mandible protruded.

(f) Prognosis:

Because it is impossible to make any definite intelligent prognosis in full denture work, one is not attempted; in lieu thereof the operator can only promise to do his very best with the conditions present.

3.—PRELIMINARY IMPRESSIONS:

These are taken in the ordinary style tray for edentulous cases. Tray should be slightly oversize. Impressions are always taken in Modeling compound. Sufficient material to cover the tray to a depth of 4mm. is softened in water at from 140 to 150 degrees glazed by passing the alcohol flame over it, this is tempered by dipping in warm water and the impression is made.

The plaster of Paris casts poured into these impressions are hereafter referred to as Study Casts.

4.—STUDY CASTS:

Their purpose is to aid in further diagnosis and they are used in the preparation of the trays for the Test Impressions.

5.—TRAY PREPARATION FOR TEST IMPRESSIONS:

(a) The Maxillary Tray.

1.—It should be so formed as to support that portion of the impression mass that is to take the impression of the vault and lower third of the ridge.

2.—It should be so trimmed as not to interfere with the functional movements of lip and other border attachments.

3.—It should have a 4 mm. opening in its centre for attachment of a resinous baseplate material stopbutton.

4.—The stopbutton should be 15 mm. in diameter on the inside of the tray and about 2mm. thick; its purpose is to

limit the upward progress of the tray during the taking of the base impression and to furnish support for the impression mass which has taken the print at the height of its plasticity, this support prevents further lateral spread of the impression material and preserves the detail of the original print. The button also serves to establish a uniform space between the tray and study casts and consequent uniform thickness in the finished impression.

5.—The inner surface of the tray is smeared with fluid compound using the stick form much as one would use sealing wax; this smeared surface affords firm adhesion for the impression mass.

6.—The ridge portion on the under side of the tray is also smeared and to this is attached an occlusal rim of modeling compound. This rim should be about 7 mm. wide and approximately 10 mm. long at the front and 2 mm. at the rear, tapering up to the surface of the tray. The rim should conform to the arch and be symmetrical, occupying the position of the teeth.

(b) The Mandibular Tray:

1.—With a lead pencil mark clearly the following positions on the study cast: The labial and lingual muscle markings anteriorly; The internal and external oblique lines, and the retro-molar triangle areas. These landmarks govern the possible extension of the impression base.

2.—Select a soft metal tray, conform it to the shape of the arch but not too closely to the ridge contour.

3.—Trim it so as to provide full freedom for functional movements of all border attachments, cut it short 2mm. of distal outline of the Triangles.

4.—Mould a 3 mm. layer of compound over cast to cover the area inside of the outline of landmarks.

5.—Heat the upper surface of this layer and imbed the prepared tray in it.

6.—Smear the upper surface of the tray and attach a rim similar to the one attached to the other tray.

6.—TOOTH SELECTION:

The three requisites of Harmony are Form, Size, Color.

(a) Form. The upper central should conform to face and arch in outline.

(b) Size. It should bear an approximate ratio to the face of one to sixteen. The six anteriors set to the ridge should bring the distal of the maxillary cuspids into alignment with the base line of the nose.

(c) Colour. The hue of the tooth porcelain should harmonize with the colors in the Iris.

Selection should be made in good daylight, teeth from the mould guide should be set on a wax base shaped over the study cast and checked for form and size. The type and shade guides should be used.

(To be Continued)



British Columbia—EMORY JONES, D.D.S., New Westminster, B.C.

Alberta—JOHN W. CLAY, D.D.S., 914 Herald Bldg., Calgary.

Saskatchewan — C. W. PARKER, D.D.S., Imperial Bank Bldg., Regina.

Manitoba—W. W. WRIGHT, D.D.S., 767 Warsaw Ave., Winnipeg.

Maritime Provinces—J. STANLEY BAGNALL, D.D.S., 77½ Larch Street, Halifax, N.S.

Ontario—LIEUT.-COL. W. G. THOMPSON, 46 Sun Life Bldg., Hamilton.

STANLEY G. MCCAUGHEY, D.D.S., 384 McLaren St., Ottawa.

Quebec—M. L. DONIGAN, D.D.S., 1396 St. Catherine St. W.

PAUL GEOFFRION, D.D.S., 308 Sherbrooke Street, Montreal.

Provincial Editors will appreciate receiving from all local societies copies of papers, society proceedings or personal notes, for publication.



MARITIME PROVINCE NOTES.



THE first regular meeting of the Halifax Dental Society for the Winter Session was held at the Halifax Hotel on the 9th of October.

Reports of the work during the past session were received, and plans for the coming winter were discussed.

The following officers were elected:—

Dr. G. Dawson, President.

Dr. J. Dobson, Vice-President.

Dr. W. C. Dowell, Sec.-Treasurer.

Dr. H. S. Crosby, Property Officer.

Dr. Hazel A. Thomson was elected to complete executive.



Dr. M. E. Morrison (Dal., 1923), was one of the members elected at the recent Provincial elections.

Dr. J. W. Dobson (Dal., 1927), has been appointed to the dental staff of the Halifax Tuberculosis Hospital.

—S. J. B.

American Dental Association, 1929



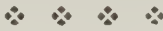
THE Seventy-first Annual Session of the American Dental Association will be held in Washington, D.C., October 7-11, 1929.



---Of Human Interest

This Department is Conducted by
G. MERRICK SINGLETON, D.D.S.

I invite you to read my page, and hope that you may find here, as I have, something which will cause you, for a short time at least, to forget a few of the many perplexities of our daily round.—G.M.S.



The Prince of Humbugs



HAVE just finished reading a most remarkable book about a very remarkable personage, no other than our old friend, Phineas T. Barnum, "the original humbug," a title which was appended by himself and which he was delighted to live up to with an extraordinary devotion. "Struggles and Triumphs; or the Life of P. T. Barnum," is the title, and the two volumes form a highly entertaining autobiography, written entirely by the great showman himself. For those who still retain that boyish enthusiasm and are yet drawn by that inexpressible lure, to the life of the "white tops," these two volumes will, I wager, provide you with most liberal entertainment and mysteriously transport you back to those boyhood days, when such a momentous occasion as the visit of a circus, was a red-letter day in your young life.

Barnum's first bow to the public in a business capacity, was made as a proprietor of a small store in which he sold stewed oysters and cheap jewelry. This, however, to the energetic youth did not prove a very "get-rich-quick" proposition. At this time, 1836, when Barnum was a young man of twenty-five, he heard of an old negress slave, named Joyce Heth, reputed to be one hundred and sixty-one years old, and to have nursed George Washington. The simple statement of these facts satisfied Barnum, as he never found that it paid, when best suiting his purposes, to be too exacting over mere technicalities. So he accepted her at her word and exhibited her to curious thousands, who paid twenty-five cents each, to hear Joyce "sing" spirituals and talk of "Little George and his hatchet." As a matter of fact, when Joyce died, upon dissection, the organs of her body proved that she had been

no more than eighty years old. However, Joyce Heth proved a great money-maker for Barnum, and was the first stepping-stone to his future greatness as a showman.

He next entered into an agreement with a certain "Doctor" Griffin, supposedly from "The Lyceum of Natural History in London," for the exhibition of Dr. Griffin's far-famed "Feejee Mermaid," which the doctor was said to have brought from China. Huge newspaper headlines described it as "a veritable mermaid taken among the Feejee Islands and preserved in China, where the doctor had bought it at a high figure for the Lyceum of Natural History." When New York curiosity had been thoroughly aroused, the "mermaid" was exhibited in Barnum's hall, with Dr. Griffin giving extensive lectures. Barnum's comment thereon is interesting:

"The public appeared to be satisfied, but as some persons always will take things literally, and make no allowance for poetic licence even in mermaids, an occasional visitor, having seen the large transparency in the front of the hall, representing a beautiful creature, half woman and half fish, about eight feet in length, would be slightly surprised in finding that the reality was a black-looking specimen of dried monkey and fish that a boy a few years old could run away with under his arm."

He next completed the purchase of a herd of "wild" buffalo, and after extensive newspaper propaganda, announced "a grand buffalo hunt, free of charge," assuring the public of "no possible danger, as a double railing had been put around the entire enclosure, to prevent any possibility of the buffaloes approaching the multitude." Twenty-four thousand people took the ferries to Hoboken that day.

"The buffaloes emerged from a shed in the centre of the enclosure, my man French having previously administered a punching with a sharp stick, hoping to excite them to a trot on their first appearance. He immediately followed them, painted and dressed as an Indian, mounted on a fiery steed, with lasso in one hand and a sharp stick in the other, but the poor little calves huddled together and refused to move. This scene was so wholly unexpected and so perfectly ludicrous that the spectators burst into uproarious laughter. The shouting somewhat started the buffaloes, and goaded by French and his assistants they started off in a slow trot. The uproar of merriment was renewed, and the multitude swinging their hats

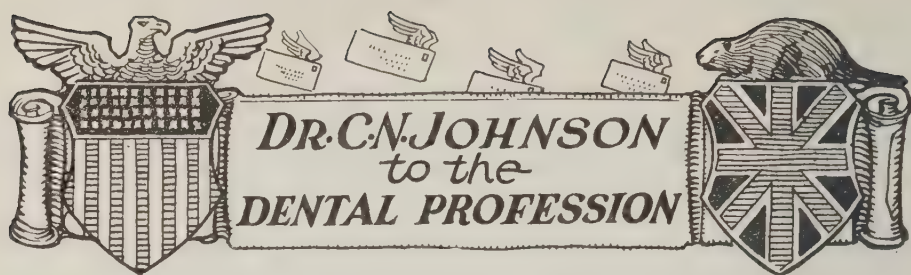
in wild disorder, the buffaloes broke into a gallop, ran against the panel of the low fence (consisting of two narrow boards), tumbled over, and scrambled away as fast as they could. The crowd in that quarter offered no obstruction. Seeing the animals approach, and not being sufficiently near to discover how harmless they were, men, women and children scattered pell-mell. The buffaloes, which were as badly frightened as the people, found shelter in a neighboring swamp, and all efforts to disengage them proved ineffectual."

Barnum was the first exhibitor of the "Siamese Twins," without which now-a-days no up-to-date circus is complete. "General" Tom Thumb proved a great money-maker. Knowing the American weakness for importations, Barnum billed the "General" as having been brought from England, at great expense. The "General" was afterwards taken to England by Barnum and there became a celebrity over-night. He was received in the best homes, and even appeared several times before Queen Victoria, Barnum taking good care, on those occasions, to display outside the theatre in which the "General" was appearing, huge notices to the effect that "General Tom Thumb is appearing by Royal Command of Her Majesty, this day, at Buckingham Palace."

Because space will not permit, I am limited thus in only giving you a few of the many hoaxes that "the world's greatest showman" perpetrated on a world that "loved to be hoaxed," and paid cheerfully for it. So if you wish once again to meet that "Prince of Humbugs," and travel with him through his "Struggles and Triumphs," you may look forward to a glorious adventure.

Of Historical Interest

- 1854. Robert Arthur, D.D.S., demonstrated adhesive properties of gold for dental fillings.
- 1871. G. V. Black, D.D.S., brought out first dental engine.
- 1880. W. D. Miller, D.D.S., established the bacteriological origin of dental caries.
- 1895. Discovery of X-Ray by William Conrad Roentgen.
- 1901. Adrenalin isolated by Takamine.
- 1905. Novocain discovered by Einhorn.
- 1915. Dapin's solution introduced by Dr. Henry Dakin.



Another Morning Walk

“**B**UD, do be patient—I’ve got to see this sun coming up between the trees—can’t you wait a minute?” The little impulsive Pomeranian and I were going for one of our early morning walks. We were climbing the hill to the south and Bud was scampering ahead as usual. I had stopped on the side of the hill to drink in the glory of the rising sun. It was slowly creeping up among the trees, a clear-cut red disk at first, and then majestically emerging a full rounded orb rose-hued and glorious. I have never seen the sun a more beautiful colour, and I eagerly worshipped it, knowing full well that in another moment the rays would be too penetrating to look at. Bud was impatient of any delay and came bounding back to see why I had stopped. “Good heavens!” he exclaimed, “What’s the big idea? Standing there gaping at the sun! Doesn’t it come up every morning? What’s the matter with you?” And he wheeled and darted through the fence and soon disappeared over the crest of the hill. Presently I heard a vociferous barking and Bud came bounding back over the hill in the utmost excitement. Evidently something was chasing him, and I was amazed, as I had never known him to break ground before in the presence of any living thing. But “in union there is strength,” and I soon saw a herd of young cattle come tearing over the hill with fire in their eyes and a vicious bellow or two. They charged pell-mell after Bud, but, fortunately, he could outrun them, and was soon safe on the other side of the fence. And then something happened. Bud’s dignity was hurt, and I have never listened to such a tirade of cuss words in my life. As soon as he was safe he turned on those cattle and told them precisely what he thought of them. He cussed them up and down, and back and forth, and his little body fairly quivered with rage. I am afraid I laughed, which didn’t seem to help matters so far as Bud was concerned. It was

some time before I could coax him to forget it and come along, but finally he turned disconsolately away and followed me. It was the first time I had ever seen Bud really dejected, but an injury to one's pride always sinks deeper than an ordinary hurt.

The morning was superb, and the sun by this time well over the tops of the trees and defied any one to look straight at it. On a morning like this I am always sorry for people who live in a city, and I am sorry for another kind of people. I pity folks who—living in the country—can permit themselves to sleep through that early hour in the morning. No other time of the day can compare with it. It matters not how hot the weather may be, there is always a bracing, coolness in the air at this hour. The birds are at their very best, and even the trees flutter their leaves a little more joyously. I think the green of the foliage is a bit softer at this hour when the sun first kisses it, and there is a freshness to everything that acts as a tonic to the senses.

I'll tell you what I am willing to do—if some of my dear friends who love to sleep in the morning will only come with me on one of my early walks, I am willing to let them snuggle up on the couch after breakfast and sleep to their heart's content. The mid-morning is not half as attractive as the early morning—there are fewer distinctive features about it—it is just plain commonplace compared with sunrise. And yet, after all, is it not fortunate that we are not all alike? Wouldn't it be a queer world if everybody got up to see the sunrise? I couldn't conscientiously ask every one to be as peculiar as I am, and so I have concluded to let my friends do as they wish, and I will even tiptoe out in the morning—not to waken the household.

But no matter how quietly I move there is one individual that never fails to hear me. The other morning I made a mistake in the time and got dressed before four. I thought the sun must be a bit lazy that morning, but, on looking out the window, I saw unmistakeable evidence that I had misjudged the time. What was the use—there was no point in going back to bed—and anyhow I have never seen it so early in the morning that it was not interesting. I concluded that I would slip out that morning without Bud, but, no sir, the moment I stepped out of my bedroom he came bounding down the stairs as if he would say: "No, you don't—you can't shake

me." It is true he cocked his little head to one side and looked quizzically up at me for a moment as if he would like me to explain; but there was only that one fleeting instant of question—if I said it was time to get up that settled it with him—it was time to get up. I wish all the world had the confidence in me that Bud has. I honestly believe it would make me a better man—I'd feel I had to keep the faith.

Bud soon forgot his discomfiture over the cattle and became chipper as ever. That is one blessing about dogs and children—they readily forget their troubles. Wouldn't it be a better philosophy if older folks did? We turned to the left at the top of the hill and meandered down a side road. The great advantage of a walk like this is that there is no set purpose; you go in any direction you wish and as far as you wish, and you turn when you feel like it. This morning I didn't walk as far as usual—I was beguiled by some berry bushes at the side of the road. Somehow a berry picked from a bush with the dew clinging to it is a bit fresher and more delicious than it is later in the day. I like to fancy that it has a distinct flavour at that hour not apparent at any other time.

After my fill of berries I sauntered along home, sanctified and at peace with the world. How could any one be contentious on a morning like this? Which leads me to reflect that I have never yet heard of a crime being committed early in the morning. Criminality begins only when nature has lost her sway, and humanity has become active. The early hours of the morning conduce to contentment and contemplation. There enter the consciousness a rapture and a reverence which ennoble and expand the heart and purify the purpose. To any one who feels disgruntled or out of sorts with the world, I have this suggestion to make: go out in the woods or along a country road in the early morning hours and let nature seep into your soul. If this fails to cure you, I have only one other suggestion to make—but that is another story, and I'll tell it another day.

C. H. Johnson

Oral Health



Vol. 18

TORONTO, NOVEMBER, 1928

No. 11

EDITOR:

WALLACE SECCOMBE, D.D.S., F.A.C.D., Toronto, Ont.

CONTRIBUTING EDITORS:

C. N. JOHNSON, M.A., D.D.S., F.A.C.D., Chicago.

W. E. CUMMER, D.D.S., F.A.C.D., Toronto.

Entered as Second-Class Matter at the Post Office Department,
Ottawa.

Subscription Price, Canada and United States, two dollars per annum; elsewhere three dollars. Single Copies 25c. Free distribution to all members of the Dental Profession practising within the Dominion of Canada and Newfoundland.

Original Communications, Book Reviews, Exchanges, Society Reports, Personal Items and other Correspondence should be addressed to the Editor Oral Health, 102 Wells Hill Avenue, Toronto 10, Canada.

Subscriptions and all business Communications should be addressed to The Publishers, Oral Health, Royal Bank Building, 269 College St., Toronto, 2, Can.

EDITORIAL

The Creative Power of Science

T is incumbent upon every member of every profession to help carry the torch of knowledge to greater heights, explore the unknown, to discover and to thereby create. The creative power of science is marvellous, and especially so when applied to a young profession such as dentistry.

There is a general recognition of the obligation that rests upon every dentist to maintain the status of the dental profession and give to the public the best possible health service. To fail in this duty would be to break faith with those that have gone before and prove ourselves unworthy of the magnificent heritage of our chosen profession. But surely something more is required than simply to maintain *status quo*. Dentistry cannot rest upon its past laurels. There is no standing still. We either progress or recede. The boundaries of knowledge and the field of service must be extended and en-

larged. Research in dentistry needs the active support of every member of the profession.

Dentists without special aptitude or facilities for research are sometimes apt to consider this field as something quite apart from the regular activities of the profession. Research laboratories without case histories or clinical experience, and without the sympathetic co-operation of the practitioner, can accomplish little of what would otherwise be possible. Team work is absolutely essential,—the dentist cannot get along without the research worker, and the research worker cannot get along without the dentist.

Dental Society of Western Canada



THE executive of the Dental Society of Western Canada met at Regina on 5th October. There were present: Geo. Cameron of Swift Current (President), Leslie McIntyre, Edmonton (Vice-President for Alberta), M. H. Garvin (Vice-President for Manitoba), J. K. Brimacombe, Weyburn, Sask. (Treasurer), C. W. Parker, Regina (Secretary). The executive discussed the question of the next convention with the officers and members of the Regina Dental Society. It was decided to hold the Western meeting on June 6, 7 and 8, 1929, and the Canadian Dental Society was cordially invited to meet with the Dental Society of Western Canada at that time.

Doctor William A. Giffin Honoured



THE first District Dental Society gave a Testimonial Dinner in honour of Doctor Giffin at Hotel Statler, Detroit, on the evening of Thursday, the fifteenth of November, 1928.

Doctor Ross Thomas Honoured



R. M. A. ROSS THOMAS was tendered an Honorary Banquet by the Dentists of London and District at the Highland Golf Club on Tuesday, October 16th, 1928.

Doctors Colon Smith, S. M. Kennedy, Harold Taylor, and C. B. Taylor took part in the toast list. Dr. O. I. Cunning-

ham made a presentation to Dr. Thomas on behalf of the Dental profession.

ORAL HEALTH joins in good wishes and congratulations to Dr. Thomas upon his achievements for his chosen profession.

Obituary

DOCTOR EDWARD D. RAMSAY, GALT.

DOCTOR EDWARD D. RAMSAY, who graduated in 1925 from the Faculty of Dentistry of the University of Toronto, and who, since graduation had been in practice in Galt, died October 25th, 1928. The late Dr. Ramsay's home was in Walkerville, and sympathy is extended to the members of his family.

* * *

COL. J. A. ARMSTRONG, OTTAWA.

COL. JOHN ALEXANDER ARMSTRONG, who organized the Canadian Army Dental Corps in 1915, and took it overseas, died at his home in Ottawa on the 2nd November, 1928.

Born 65 years ago, he was a son of Thomas A. Armstrong and Jane Beatty. He received his education at the Royal College of Dental Surgeons and University of Toronto. He was a captain in the old 43rd Duke of Cornwall's Own Regiment. For years he took a keen interest in school affairs, and for 10 years was a member of the Ottawa public school board, of which he was at one time chairman.

Col. Armstrong will always be remembered in Canadian Dentistry as the Director of Dental Services in the Canadian Army Dental Corps, and for his services overseas.

* * *

DOCTOR A. W. WINNETT, KINGSTON.

IT is with deep regret that we record the passing of Doctor A. W. Winnett, of Kingston, who graduated from the Faculty of Dentistry, University of Toronto, in 1899. The late Doctor "Bert" Winnett had been ill only for a day or two and died suddenly from a heart attack on Friday, 26th October, 1928.

The late Dr. Winnett was born at London, Ontario, but

had been in Kingston for many years. His associations in various ways during his life in Kingston made him a prominent and popular figure and his death is mourned by hundreds of citizens.

Dr. Winnett went overseas with the Dental Corps and shortly after his arrival overseas was made Adjutant of that service. He held the rank of Lieutenant-Colonel. He was a member of the Masonic Order and was Past First Principal of the Ancient Frontenac and Cataraqui Chapter, Past Master of the Hugh de Payne Preceptory and a member of the Shrine of Rameses Temple. He was a member of the Frontenac Club, the Cataraqui Golf and Country Club and the Kiwanis Club. Dr. Winnett was outstanding in Kiwanis Club affairs and highly popular with his fellow-members.

He is survived by his wife and one son, Albert, who is at present attending Queen's University.

Dental Superstitions



HAT dental work should not be done during pregnancy.

That every child costs the mother a tooth.

That diet during pregnancy can have little to do with the teeth of the child, because the child does not get teeth until he is at least six months old.

That baby teeth have very short roots.

That the habit of thumb-sucking will correct itself as the child grows older.

That when the nerve is taken out of a tooth all trouble with that tooth is over.

That when a gum boil disappears the tooth that caused it is well again.

That all gold crowns are a menace to health.

That after the extraction of a tooth for systemic reasons, the trouble will clear up immediately.

That the removal of infected teeth will cure all diseases to which human flesh is heir.

That after an extraction the wound will heal better if the mouth is frequently rinsed with mouth washes.

That a dentist should be consulted only when there is need for an extraction or for fillings.—*Hygeia*.

*THE true Christmas spirit begins
where all the meanness and vice of
humanity leave off; where all bit-
terness turns to benevolence; where hating
changes into loving; where taking becomes
giving, and where the Golden Rule is the
measure of a man.*



DOCTOR ARTHUR L. WALSH,
*Acting Dean, Faculty of Dentistry, McGill University and
President Montreal Dental Club.*

ORAL HEALTH

*A JOURNAL THAT STANDS FOR THE OUNCE OF
PREVENTION AS WELL AS THE POUND OF CURE*



Vol. 18 TORONTO, DECEMBER, 1928 No. 12

Fourth Annual Fall Clinic of the Montreal Dental Club

Reported by

M. L. DONIGAN, D.D.S., *Provincial Editor,*
ORAL HEALTH.



THE fourth Annual Fall Clinic, held under the auspices of the Montreal Dental Club was held at the Mount Royal Hotel and the Montreal General Hospital, October 18th, 19th and 20th, 1928, and was voted by all those who attended to be the best yet.

The Clinic was opened on the first morning with short addresses by Dr. A. L. Walsh, President of the Montreal Dental Club and Dr. Wallace Seccombe, Dean of the Faculty of Dentistry of the University of Toronto.

The remainder of the day and the entire day following were taken up with the papers and clinics given by the attending clinicians.

* * *

Construction of a Case for an Edentulous Patient

W. F. LASBY, D.D.S., MINNESOTA.



THE taking of impressions required between one hour and one hour and a half. No preparatory steps, such as the taking of snap impressions or the adaptation of trays to snap casts, were done. A tray was selected which would carry the impression compound onto all those areas to be covered by the denture base, its flanges were trimmed and bent, until when examined in the mouth no inter-

ference occurred with the action of the muscles, and space for impression material of $\frac{1}{4}$ "- $\frac{3}{8}$ " thickness existed between the tray and the tissues of the mouth.

Black impression compound heated to about 140°F. was then moulded into this prepared tray, being built up in the vault region, so that contact with this area of the mouth would be the first to occur.

The whole surface of the compound was then glazed in a flame and introduced into the mouth: pressure was exerted upwards and backwards until the superfluous compound began to appear at the posterior border of the tray: then the operator, while holding the impression in place, swiftly and skillfully adapted the peripheral borders and moulded them to the correct height by drawing down on the cheeks and lip. When the compound had hardened the impression was removed and the excess trimmed away to the desired form, except along the posterior border which was left long. Post damming was now accomplished with brown impression compound with which only sufficient pressure was used to secure a valve seal. The posterior border of the impression was now trimmed as far anterior as the Fovea Palatina (the two small depressions usually found one on either side of the median line at the junction of the hard and soft palates) and the anterior flanges moulded to restore facial contour. The whole interior of the impressions which came in contact with the hard palate was scraped away, including those areas under which the Naso-Palatine and Anterior Palatine nerves enter to the roof of the mouth. The plaster wash was then taken with a thin mix of a slow-setting plaster.

The tray for the mandibular impression was prepared by trimming and bending as in the case of the upper. Into such a tray was laid 16 gauge wire to serve as a support when the compound would be removed from the tray. The softened black compound was then moulded into the tray to approximate form, the surface glazed and inserted into the mouth with a downward and forward pressure. The compound having hardened, some additional pressure was secured in the retro-molar area by tracing on brown compound.

The impression was then removed from the tray and its periphery trimmed with a knife to the desired plate outline. It was tested for stability and correctness of extension. These being satisfactory a plaster was then taken, the excess plaster

being moulded up over the flanges on the buccal and labial by the operator and on the lingual by the tongue of the patient.

The impressions were boxed and poured into artificial stone, and upon the resulting casts, trial base-plates and bite rims were constructed. These rims were trimmed in the mouth until the desired contour and intermaxillary space was secured and central occlusion registered.

It is worthy of note that the operator did not tell the patient to "bite," nor ask him to "close naturally," nor yet, instruct the patient to close in any particular fashion "because this is very important": but simply requested him to "close," which he did, and having done so involuntarily registered his habitual intermaxillary relationship.

The patient was then dismissed and the casts mounted upon the Gysi Simplex Articulator without the face bow: neither were horizontal condyle inclinations registered.

The teeth were then set up and balanced on the articulator: they were tried in, some minor adjustments made and the case converted into rubber. After this a new wax registration of central occlusion was secured, the dentures remounted in their original average position on the articulator and the teeth ground in.

These dentures when inserted into the mouth noticeably improved the profile of the patient and appeared satisfactory in every way.

* * *

Resumé of Clinic Given by Herbert Nelson, D.D.S., Minneapolis



THE construction of three-quarter crowns in crown and bridge work was at first very unsatisfactory and it was not until six or seven years had passed that satisfactory results began to be obtained.

The majority of failures occurred on cuspid teeth due to their conical shape with the heavy loads put upon them, and were due to three main causes:

1st. Preparation was too thin.

2nd. Preparation was too tapering.

3rd. Improper preparation for retention and cementation.

In the preparation of a cuspid tooth for a three-quarter crown, sufficient bulk should first be removed from the lingual

side, then the mesial and distal sides should be squared up.

Grooves should be prepared in the mesial and distal by means of a number 700 fissure burr, care being taken that these grooves be absolutely parallel.

In all cases of incisal teeth, with the exception of very thin centrals or laterals, the mesial and distal grooves should be joined together by means of an incisal groove.

A lingual groove or pit should also be made near the gingival margin, care being taken not to injure the pulp.

In the preparation of a bicuspid for a three-quarter crown, the technique followed is the same but is generally used in conjunction with an occlusal inlay as it gives added strength to the inlay, and serves as a protection to the buccal cusp. In some other teeth, such as short third molars, a band combined with an occlusal inlay gives very good results.

WAXING OF THE INLAY.

May be done directly or indirectly, but it has been found that most men learn the indirect method best.

In the indirect method, a band 31 gauge is chosen which will slip easily over the tooth yet go under the margin of the gum. The band is then roughly trimmed so as to cover the margins of the cavity, filled with warm compound and an impression taken.

The band is then removed and again trimmed to a further fit, the compound warmed and another impression taken, forcing it well down into place. Before it is cool loosen the impression lightly and press it back into place a few times, then hold it firmly until quite cool. When quite cool the impression should be removed and if no defects are noticed it is ready to be poured. The impression should be wrapped in stiff paper and set into plaster. Amalgam is then mixed, and should be divided into two parts in the proportions of 1-3 and 2-3. All the excess mercury from the larger portion should be squeezed into the smaller one, which will result in a very sloppy mix. This is carefully jarred into the impression and then the dry amalgam is inserted by means of packers and the excess mercury all worked out. When the amalgam is quite hard it should then be separated and all the overhanging edges carefully removed.

When waxing up the inlay the lingual and incisal parts are first covered, followed by the mesial and distal parts. Care

should be taken at this point that the occlusion is correct with the opposing teeth, also that if neighbouring teeth are present that the wax pattern fits closely to them, although no attempt is made at this step to finish a contact point, this should not be done until the casting has been tried in the mouth, a small piece of 22K. solder should then be placed at the point of contact and melted.

The wax pattern should then be removed from the model, mounted on the sprue, washed with acetone and invested.

A single investment is used, the water and investment material both being weighed and heated to a temperature ranging from 96 to 135°F., depending on the type of casting to be done.

The investment is then mixed and vibrated into the ring, the lip of the bowl being placed at the edge of the ring giving a sharp corner which will help to break up any small bubbles in the investment.

The new wax pattern should be placed at such an angle so as to allow the investment to flow into it easily and eliminate any bubbles.

The invested pattern is then allowed to dry for about 30 minutes, and then placed in a Knapp Eliminator for 5 to 5½ minutes. It is then removed and, as soon as the moisture no longer appears, should be cast. Golds used are T double T and clasp metals, depending upon the type of casting. It is then placed back on the model and should come to within ¼ to ½ a millimetre of fitting.

A little trimming may be necessary, this should be done with a fissure burr, and then tried again until proper fit is obtained.

Then casting may be lightly swaged if desired.

* * *

Children's Dentistry

E. F. SULLIVAN, D.D.S., BOSTON.



THE subject of children's dentistry is looked on by the foremost or professional educators as the most important topic before the dental profession to-day.

Dentistry has advanced from a dubious handicraft to a noble profession recognizing and accepting the responsibility in the maintenance of general health.

The more we study the situation in its entirety the more we are convinced that it is primarily a problem of childhood.

Our greatest opportunity is in education and early and systematic treatment—children's dentistry.

What it is, why it has come, and how it can be practiced, is my theme.

Dentistry has been too much occupied with adult repair work to give proper attention to prevention, or even control, of mouth diseases.

As a result of research work and investigation of existing conditions the profession of dentistry was forced to realize, through the combined findings of the radiologist, pathologist, bacteriologist and economist, the hopelessness of fulfilling its mission through means of reparative dentistry.

Furthermore, it has come to the realization that its greatest and main service to humanity must consist henceforth not merely in rendering palliative treatment, but in the controlling and preventing of oral diseases and their sequelae.

Dr. Edmund Kells, in an answer to a request of Dr. Millberry for an expression of opinion on the future of operative dentistry, said "Why the operative dentistry of the future is in the hands of the deans of our schools, and the answer is substantiated in the fact that several state schools have established thorough courses in children's dentistry.

It is our duty to the child to assure the best possible physical and mental equipment to provide every means of growth and development of perfect bodies. While many factors must be considered, the care and protection of teeth in the rising generation is of great importance, particularly as their living conditions are becoming more artificial and food deviating from the natural.

Are we, as dentists, doing our duty in view of the existing deplorable oral conditions?

We are told that 84% of children at the age of 3 have caries. A few years later 95% of the same children are virtually dental cripples.

Can there be any solution other than children's dentistry?

Can dentistry improve the health of these people when they finally do come to your office as adults?

What is children's dentistry and how does it differ from accepted orthodox dentistry? The latter has dealt almost exclusively with well-established disease conditions. Children's

dentistry aims to prevent these same conditions, as well as their systemic results. Children's dentistry in an operative sense is just plain honest, common sense dentistry begun at the proper time of life, two years of age. Some of the advantages to the patient are, cleaner mouths, better developments of the face, nose, and sinuses, maintenance of function as an influence for better digestion and health, better mentality and citizenship, minimizing of pain and nervous reflexes, and diseased conditions that lead to the root canal problem and the loss of teeth and function.

Children's dentistry is not spectacular or sensational, nor does it presuppose miraculous cures. It is rational, early, continuous and systematic application of our dental knowledge.

It is perfectly obvious that we must first educate parents. In our professional capacity the public rightfully expects guidance and education, it is part of our service to the community.

We must be frank and tell them of our newly acquired knowledge and what it means for their children in terms of health.

Be enthusiastic, and impress its importance and value in end results from all esthetic, functional, mental, and physical aspect.

Explain to parents the advantages of bringing children to you at two years of age. Insist on it, if you are to give the best results possible. They must understand that to do this effectively our service must be continuous and systematic, and with the parent's co-operation. We are morally obliged to educate the parents, but if for any sufficient personal reasons we do not care to operate for the child, our professional obligation demands that we refer the parent where she can get it done.

Unfortunately, dentists in general maintain that children are unsatisfactory as patients.

They say that children break up the routine of a quiet, well organized office, they are difficult to manage, nerve-racking and in many cases exasperating.

This need not be true, and is not true, of most children. On the contrary, children make good patients. Their version of things and of life itself as seen through innocent eyes, their infinite fund of questions, all go to make them attractive patients.

Many times there exists a mutual misunderstanding, the

dentist fears trouble, and the child fears the unknown or pain.

When you have learned to control the situation your fears will disappear and confidence will replace the child's fear.

The confidence of the child in the dentist is the keynote of successful management of children. To gain and strengthen this great trust one must be honest, kind, firm, patient, and have a knowledge of the attitude and capacity of the child mind; the greater knowledge of child psychology, the greater the success will be.

The general practitioner who desires to give children's dentistry a fair trial should reserve a morning a week, preferably Saturday, to begin with.

It is necessary to care for the deciduous teeth, and although their anatomy and occlusion may differ from the permanent teeth, the operative technique is the same.

No defect is too small to receive careful attention, and although the work is complicated by the exfoliation and eruption of teeth and the developing of pernicious habits, dentistry for children is comparatively simple and easy for the operator and the patient.

Operative procedure should be undertaken in successive steps, graded from the simplest to the most difficult. Relief of pain, of course, demands first consideration, but this should not exist if children are seen early.

We will consider the ordinary steps.

- i. Prophylaxis.
- ii. Thorough examination.
- iii. Small fillings.

If treatment is begun early enough this is all that should be required. This type of dentistry is a service, not a series of operations.

The operator must have a conception of his work as involving not only the physical, but the mental and moral issues as well.

The responsibilities are great, but the end results are more sure and of more benefit to the patient than any other type of dentistry.

The question of adequate remuneration for children's dentistry is of extreme importance and should be considered seriously if general participation in this work is to be successful. The outstanding hindrance to children's dentistry in general

practice resolves itself into a question of fees. The time-worn argument that the public will not pay adequately for dental service rendered children is in no way justified. This false impression and misconception is the fault of the dentist who has unwittingly belittled the importance of his service for children. A reasonable yearly service charge is the solution of the fee problem. Parents will not, and do not, when properly educated, hesitate to pay for a service that will make their children stronger, happier and more useful men and women. A fixed yearly charge mitigates the parents' worry in trying to make unexpected bills fit into the family budget and assures the keeping of appointments.

Reasonable yearly rates depend entirely on the value we place on our time and the number of hours a case will probably require during a year. We must know the value of our time, no one can tell us that, it is just what we believe it to be for services rendered.

The time required for cases varies, depending on our operating speed, the history of the case, the age seen for the first time, the general physical condition, the tractability of the patient, the environment, etc.

As a working basis two to three hours a year in three to five appointments is ample to obtain the maximum of prevention and the minimum of operative repair work for a normal child seen before three years of age. Taking the responsibility of appointments for periodic examination as part of our service the time allotted is generally sufficient to carry the average child through to adult dentition with its full complement of clean, vital, healthy teeth.

Children seen for the first time at six years of age require more time to have their mouths put in a healthy condition in the first series of visits.

If your work is done well, two hours a year thereafter is generally sufficient. Children seen at six, five or even four, do not afford us the opportunity to approach the maximum of prevention, as their mouths are already mutilated by decay, pulp involvements and abscesses, a further consideration in regulating our fees.

The dentist who realizes the true value of children's dentistry and conveys his knowledge to his patients and does the necessary educational work, will have little difficulty in col-

lecting a proper fee for the most conservative and constructive service the dental profession can render.

The highest ideal of dentistry, a health service, can only be achieved by adherence to these fundamental principles. So doing we can help dentistry to discharge its responsibility to posterity and further its standard of service to the world.

* * *

The Use of the Microscope in the Treatment of Root Canals and Vincent's Stomatitis

J. L. APPLETON, D.D.S., PHILADELPHIA.

ROOT CANALS.

F Root Canal work is to be done, and done successfully, it must be anti-bacterial, and in order to check the results obtained, the treatment must follow bacteriological methods. The chief draw-back to bacteriological methods is that they will only tell you when not to fill the root canal, but will do so when all other methods fail.

The method followed in Bacteriological Treatment is as follows:—

1. Be certain that canal is properly cleaned out and clinically ready for filling.
- 2a. Make a smear from a dressing that has been in the canal at least 24 hours.
- 2b. Dry smear thoroughly.
- 2c. Fix by passing through flame two or three times.
- 2d. Stain with Methylene Blue and wash.
- 2e. Examine under the oil immersion lens 1.9 mm. objective.
- 3a. If bacteria or pus cells are seen, continue or reconsider treatment, as periapical infection still exists.
- 3b. If no bacteria or pus cells are seen, take a culture.
4. To take the culture.
- 4a. First wash the canal thoroughly with two or three paper points moistened with sterile physiological salt solution
- o) Sterile H₂O in order to remove any trace of the antiseptics used.
- 4b. Dry canal with sterile paper points.

4c. Insert another sterile point to very apex of the canal, the tip of the point must show apical fluid present or the finding of absence of growth in the culture is negative.

4d. Drop the paper point into the culture media, a liquid media is used so that if small quantities of the antiseptic chemicals remain they will go into solution more readily than in a solid media. The media most suitable for use are Hormone Broth or Rosenow's Brain Broth as both are very susceptible for the growth of Streptococci which are the most common organisms found in root canal infection.

4e. Incubate for at least 24 hours.

This may be done in either of three methods:

i. By returning the culture to the laboratory where purchased.

ii. By a small incubator manufactured purposely for such work.

iii. By the use of a quart size thermos bottle, fill the bottle about three-quarters full with water at 40°C., insert the tube suspended by a string, place the cover and allow to remain for at least 24 hours.

4f. Examine culture by eye and by a smear under microscope I.9 mm. objective.

4g. If bacteria or pus cells found reconsider or continue treatment.

If no bacteria or pus cells are found transfer two or three loopfuls of the culture media to a blood agar slant and incubate for at least twenty-four hours.

If bacteria or pus cells are found reconsider or continue treatment.

If no bacteria or pus cells are found canal should then be filled if clinical conditions are still favorable.

It must be emphasized that the various steps outlined above do not require but very little time to do, and that either of the two stages, the making of a smear and the making of a culture may be used independently of one another, but that the best and most definite results are obtained when used in conjunction with each other.

VINCENT'S STOMATITIS.

There are three main purposes for microscopic inspection in Vincent's Stomatitis.

1. Diagnosis. This should never be made from the micro-

scopic findings alone but always in conjunction with a thorough clinical examination, the reason being that, as in many other diseases such as diphtheria, typhoid, etc., the germ may be present in varying numbers, without actual infection.

The clinical examination should be made first and a typical case will show the following symptoms:

Gums quite swollen.

Very red in color.

Bleed very easily.

Very painful to touch.

Characteristic foul odor.

Occasionally grey sloughing over some parts and shallow ulcerations in the interdental spaces.

2. The second purpose is for the control of treatment.

3. When to discharge patient.

METHOD OF MICROSCOPICAL INSPECTION.

1a. Make a broad thin smear on a glass slide from the affected part; it is best to make several such smears from different parts, as some may be negative.

1b. Dry thoroughly.

1c. Fix by passing through flame 2 or 3 times.

1d. Stain with Carbol Fuschin and wash immediately, and stain with methylene blue 10-30 secs. If properly stained color will be on distinct blue side of purple, if not repeat with methylene blue.

1e. Examine under oil immersion lens. If large number of Spirochætes and Fusiform Bacilla are found with few other bacteria present, and the clinical examination has been made, a positive diagnosis may be given.

Treatment should be continued until such time that no spirochætes or fusiform bacilla may be found.

* * *

“Drugs Used in the Oral Cavity”

J. E. AIGUIER, D.D.S., PHILADELPHIA.



THE remedies and the treatments which are given below are the result of many years of careful investigation and research work, and also in many cases the ones used by the majority of dentists to whom some fourteen hundred questionnaires were sent out,

First on the list comes the "Treatment of Odontalgia" or "ordinary toothache."

A few drops of a mixture of 150 grs. of Chloratone in 1 ounce of Oil of Cloves has been found very satisfactory as both have obtrudent properties.

Sensitive Dentine, in some cases it is necessary to use block anæsthesia but should be avoided as much as possible.

A mixture of five parts Potassium Carbonate to 1 part Sodium Carbonate mixed to a paste in a mortar, applied to the cavity with a spoon excavator and burnished in with a warm ball burnisher will be found very efficient as a means of relieving sensitive dentine.

Sterilization of the Cavity. Should be first swabbed out with a mixture of 1 part of Chloroform to 3 parts alcohol and then sterilized with a 50% solution of Thymol crystals in alcohol.

Varnishing the Cavity. Pure Gum Copal from which the volatile products have first been driven off, and then dissolved in chloroform and alcohol gives a thin varnish which is easily controlled.

Protective Media under Cement. Zinc oxide and eugenol are mixed in a thick paste and inserted into the cavity after which the cement is flowed over.

Pulp Exposure. Zinc oxide and thymol are mixed to a paste warmed and allowed to crystallize. When needed, small quantity is then warmed and flowed over the exposure when it again hardens.

Devitalization of Pulp. If arsenic is to be used, should only be used in the form of arsenical fibres, and a very few strands at once, as it is the only method in which it is possible to obtain the minute quantity of arsenic necessary to devitalize the pulp and no more.

Root Canal Cleansing and Enlarging. Dilute Nitro Hydrochloric Acid made by reversing the proportions of each as given in the U.S. Pharmacopeia, has been found very useful as it destroys the tooth structure, but does not combine with other substances.

Sodium Dioxide with cotton on a broach has also been found very useful as a cleanser.

Root Canal Sterilization. Iodine and Chlorine are used extensively. The Chlorine is the best one to use, but it must be fresh or Nascent Chlorine.

If the canal is ionized with Sodium Chloride, fresh Chlorine is liberated.

Preparation named Monochlorphenol may be used by forcing Chlorine through Phenol and dissolving in a white oil base, this will give off fresh chlorine from 24 to 48 hours, it is non-irritating and quite stable.

Root Canal Lining and Filling. Fifteen grains of Resin dissolved in $\frac{1}{2}$ ounce of acetone makes a very satisfactory lining, the canal should be thoroughly dried and two or three coats applied.

Gutta Percha placed in a mineral oil and heated over a sand bath from 12 to 24 hours has been found the most satisfactory filling material for root canals. When the gutta percha is thoroughly dissolved in the mineral oil it should be allowed to cool and harden. When required, small quantities may be chipped off and heated till they liquify and then inserted on gutta percha points.

Vincent's Stomatitis. In the early treatment of this condition Chromic Acid was found to be one of the best remedies, and it is still considered to be the best. It should be used as an 8% solution, and should be applied to affected areas with a small pledget of cotton. Freshly liberated oxygen is very necessary in the treatment and for this the use of Sodium Perborate has been found very good. It should be recommended for use at home as a mouth wash and should be used in a proportion of one teaspoonful to a glass of warm water.

If Sodium Perborate is not obtainable it may be made up as follows:—

One quarter teaspoonful of salt,

One quarter teaspoonful powdered borax,

One teaspoonful of Hydrogen Peroxide to a full glass of water. The water should be slightly above body temperature and a fresh solution made each time used. The entire glassful should be used at one time and should be repeated every hour or so, a mouthful of the solution should be taken into the mouth and held for one-half to three-quarters of a minute.

Vincent's Stomatitis is very likely to recur unless completely cleared up.

All the corners and crevices in the oral cavity should be carefully treated.

After the affected parts have been treated with Chromic Acid they should be covered with a paste made up of very

fine copper sulphate powder in water and carried into all the pockets and crevices, it is then sealed in with white vaseline and the patient requested not to swallow, eat or drink for at least one hour, this gives the copper sulphate an opportunity to completely sterilize the area.

Canker Sore. An 8% solution of Zinc Chloride in water has been found very effective, if used at this strength it will not affect any other parts of the mouth and yet is strong enough for the treatment.

When applied to the affected area it will cause it to turn a milky white, it should be left like this for about one minute and then touched with Talbott's Iodine. Repeat in 24 hours if necessary.

Haemorrhage. In the control and checking of haemorrhage nothing has been found that has the same effect as Thromboplastine. It should be applied as directly to the area as possible in a piece of gauze and pressure maintained preferably by means of the thumb or fingers. Only when the area cannot be localized, or when it is impossible to apply pressure, should an injection be made.

Painful Sockets. The routine treatment followed in extractions is Balsam of Peru applied on a piece of Iodoform gauze and changed every 24-48 hours.

Some of the most useful antiseptics for the office are as follows:

Campho Phenique.

Potassium Permanganate used as a deodorant, and also as an antrum wash when used in a solution one to 5000 of water.

Phenol crystals and liquid.

A solution of one part of Iodine to two parts of Acetone for local application before injections is very effective.

In the application of drugs, tooth picks with a little cotton have been found much more satisfactory than the former drug applicators.

A powder insufflator such as used by the nose and throat specialists is very useful in some cases, such as spraying the throat with neo-salvarsan powder in Vincent's Stomatitis.

Local Anaesthetic.

Novocaine is strongly recommended. It may be used from a stock solution prepared by adding the novocaine powder to a solvent made up of three and one-half grams of Sodium Chloride and 2 grams of Potassium Sulphate to 500 c.c.s. of distilled water.

Oral Surgery

LEO WINTER, D.D.S., AND LOUIS HAYES, D.D.S., NEW YORK CITY.



PRACTICAL clinic was given to the whole group who assembled at the Montreal General Hospital in the large theatre. Dr. Leo Winter and his assistant, Dr. Louis Hayes, coming directly from the train entered the operating theatre at 9.15 a.m., having prepared themselves for surgical demonstration.

Case No. 1. Maxillary unerupted canine. Local Anæsthetic was used and the operator's favourite technique of laying back the palatine mucosa as far as the bicuspid was demonstrated, detaching the same from the gingival of the eight anterior teeth lingually. Having exposed the coronal portion of the canine tooth the osseous covering was removed with the assistance of chisel, mallet and surgical burr, and the tooth removed with an elevator. The mucosa was then returned to its original location and the patient dismissed.

Case No. 2. Radicular Cyst. Right mandible, bicuspid and molar region, young lady. This case was done under Intra-tracheal gas anæsthesia given by Dr. C. C. Stewart, Head of Department of Anæsthesia of the Montreal General Hospital. Dr. Stewart explained the premedications of the case, having given $\frac{1}{4}$ gr. morphine and $\frac{1}{150}$ gr. of atropine $\frac{1}{2}$ hour previous to operation. This proved to be an ideal anæsthetic for the case and Dr. Stewart was given due credit by the operator. A complete enucleation technique was used with horizontal incision antero posteriorly and ossistructure covering the cyst removed. The cyst was then removed intact and the flaps returned and sutured.

Case No. 3. Lower 3rd and upper 3rd molars, impacted—Right side. Dr. J. A. Kerr demonstrated the blocking of the Posterior Superior Alveolar, Palatine, Inferior Dental, Lingual and Long Buccal Nerves. Lower impaction was of mesio angular type. Incision in line with middle of retro-molar triangle and mucosa relieved. Ossistructure was removed with chisel and mallet. The malleting force used was a revelation to all and the remarkably short space of time needed for the operation demonstrated the skill of the operator and his assistant.

Case No. 4. Six year mandibular molar. Boy 10 years of age. Forceps only needed.

On behalf of those present a vote of thanks was tendered Dr. Winter and Dr. Hayes and also Sister I. Davies for their hearty co-operation. The Hospital environment was ideal for this clinic, strict surgical asepsis being observed throughout. Dr. F. W. Saunders and Dr. Arnold Mitchell directed the programme in a very able manner.

Edmonton Dental Society



THE Regular Meeting of the Society was held in the Macdonald Hotel, on Tuesday, November 6th, at 6.15 p.m., an interesting programme being provided.

A moving picture of the movements of the Human Mandibular Joint was shown. This picture was taken during an operation on the joint. The operation was performed under a local anæsthetic and while the tissues were open the patient was instructed to make the movements and the camera was used to record them.

A matter of extreme importance to every dentist was considered, namely, the proposed Medical and Dental Building. Dr. Mooney, representing the Edmonton Academy of Medicine, gave a report of their investigations. He has made a trip to some of the larger centres in connection with this matter and is in a position to show the advantages of such a building.

—W.S.H.

Success and Failure



THE test of life is living. The test of worth is service. He who serves himself and no other is a failure, though death release his grasp on the ransom of an empire. He who finds life bitter is a failure, though multitudes cheer him on the street. The king who rules an unhappy and maltreated people is a failure. The carpenter who hangs a door well is a success. There is more honour in using one talent well than in abusing the possession of ten.

Eastern Ontario Dental Association, Ottawa, October, 1928



THE Eastern Ontario Dental Association held its fifty-first Annual Meeting, October 1st and 2nd, at the Chateau Laurier, in Ottawa. The attendance was good, and the programme excellent. Because the E.O.D.A. is as much an annual re-union as it is a meeting for study, the scientific end of the programme is never lengthy enough to interfere with a good time. This year, the essayists were limited to two in number,—Dr. Hugh Ross, of Toronto, and Dr. D. P. Mowry, of Montreal, who gave practical clinics, papers and lantern slides on Periodontoclasia and Operative Dentistry, respectively. The excellence of these men's presentation, and the ample time afforded them, justified the committee's contention that it was best not to overcrowd the programme.

We also had the pleasure of the company of Dr. Conboy, Director of Dental Services of the Ontario Department of Health, and Dean Seccombe, of the Faculty of Dentistry of the University of Toronto, both of whom addressed us at some length on developments in Dentistry within their official spheres.

At the noon luncheon on Tuesday, Dr. Geo. Campbell of Ottawa gave us an address on "the Photo Chemical Action of Light." His paper was a classic! Tuesday afternoon, the Annual Golf Tournament was held at the Rivermead Golf Club, at which Dr. John Philips, Dr. W. W. Beattie, Dr. Harry Smith, Dr. Milton Armstrong, Dr. Mulvihill, and Dr. O. K. Gibson, won the prizes. The prizes were presented by Dr. S. S. Davidson, in his own inimitable way. These prizes, and those for the bridge, were donated by the Ash-Temple Co. and the Dental Co. of Canada. The convention ended Tuesday evening with a dinner-dance-bridge at the Rivermead Golf Club, with about one hundred and fifty present. For this event, the Ottawa Dental Society joined with us, and took complete charge of the arrangements. Needless to say, this assured the success of the evening. During the dinner and following it, some specialty numbers were given by Drs. L. E. MacLachlan, W. E. Meldrum, and W. Pritchard and solos were rendered by Dr. Percy Nesbitt.

The dinner was under the chairmanship of the President of

the E.O.D.A., and a very neat speech was made by Dr. Leon Letellier, President of the Ottawa Dental Society. A serio-humorous address entitled, "Crowns, Fillings, and Bridges," was delivered by Major the Reverend G. G. Kilpatrick of Ottawa, who, as an after-dinner speaker, has few peers. The dance, under the convenership of Dr. Geo. Hutchison, and the bridge, under Dr. Chas. Juvet's direction, brought the convention to a happy close.

This year, for the first time since its formation, Dr. W. Sparks of Kingston, was unable to attend. A message, telling him that he was missed indeed, and hoping for his speedy recovery, was sent him.

At the business meeting, the report of the District Representative was read and approved, and several spoke flatteringly of his services to the district. Next year's meeting will be held in Brockville, the following officers being entrusted with its arrangements:—Pres., Dr. Geo. Gorrell, Morrisburg; Vice-Pres., Dr. D. C. W. Coupland, Ottawa; Sec.-Treas., Dr. Woodrow, Brockville; Auditors, Drs. S. W. Bradley and W. C. Macartney; Programme Committee, Dr. L. E. McLachlan, Dr. John Philips, Dr. W. B. Beattie, and Dr. S. H. Hutt.

* * *

President's Address

S. G. McCAUGHEY, D.D.S., OTTAWA.



THE nineteen-twenty-eight meeting of the E.O.D.A. will be the fifty-first anniversary of the founding of the society; it begins the second half of a century.

Last year, at our Golden Jubilee meeting, we paid formal tribute to the memory of those pioneers who, with foresight and ambition, founded this Association, an Association which, in the early days, did the "spade work" and laid the foundation for more of the legal and ethical standing of the profession than any other in the Dominion.

Let us begin the new half century in such a way that all may realize that we have "caught the torch" and will carry it on to at least an equal accomplishment in progress.

The ideas and example of the E.O.D.A. have borne fruit, and now the Mother Society finds itself so far surpassed in numbers and boundaries by Provincial and Dominion Socie-

ties that it exists only as a local Society, and yet, because it embraces a larger territory than any in Canada, except the ones I have mentioned, it cannot truly be termed local.

The objects in the minds of the founders; those of leadership in legislative and educational advancement have been taken over by the largely more representative bodies, and rightly so, yet there is no reason why this Society may not still be the birthplace of ideas of national importance.

The atmosphere of the E.O.D.A. meeting has always been an example and a stimulant to me, and if I, as your President, have any thought to leave with you, it is in this connection. I belong to fraternal organizations and clubs, but nowhere have I seen fraternalism and brotherhood more exemplified than in this professional Society.

There exists, unfortunately, in the minds of some in business and professions, the idea that to succeed, one may fairly use, or even bring about the failure of others. Sometimes they seem to think that they can best gain the pinnacle themselves by "knocking" the other fellow. It has always been a happy thought with me, that Dentistry, as a profession, is less guilty of this than others, and I believe that comradeship and a desire to be helpful to our confreres has in no small measure been engendered by the meeting of this Association.

If our practical tasks are in larger hands, there yet remains the pleasant one, to foster the spirit of friendship. Therein, to my mind, lies the great "raison d'être" of our existence, our intangible asset, the challenge of our future.

* * *

The Photochemical Action of Light

GEORGE A. CAMPBELL, M.D., OTTAWA.



R. PRESIDENT and Gentlemen:—I appreciate keenly the honour you have done me in asking me to address the oldest provincial dental society of Canada. Your profession is to be congratulated in the remarkable advance in scientific dentistry that has taken place in the last seventy-five years. In that time the dental colleges in North America have increased from one to fifty. The dental curriculum of to-day is equal to the medical curriculum of ten years ago. The vast changes that have taken

place may be imagined when one considers the advertisement of Paul Revere, famous for his ride, in the Boston Gazette for August 29th, 1768, which reads as follows:—

“Whereas many persons are so unfortunate as to lose their fore teeth by accident, and other ways, to their great detriment, not only in looks, but speaking both in public and private:— This is to inform all such, that they may have them replaced with false ones, that look as well as the natural, and answer the end of speaking to all intents, by Paul Revere, Goldsmith, near the head of Dr. Clark’s Wharf, Boston.”

Paul Revere was a goldsmith and ivory turner. He also engaged in copper plating, and in printing, and in the practice of prosthetic dentistry.

In medicine more and more thought is being given to the prevention of disease, especially in childhood, where we have at least twenty distinct diseases, which we now consider definitely preventable. Small wonder, therefore, that dentistry, dealing as it does exclusively with the most prevalent and universal of the diseases of civilization, should ask itself what can be done to prevent dental decay. Public Health authorities find that ninety-five per cent. of school children in America and seventy-five per cent. in Great Britain have decayed teeth, and many theories, such as heredity, dietic errors, etc., have been advanced to explain this state of affairs.

The deposition of calcium in the primary teeth begins during the twentieth week of foetal life and the first teeth are all calcified before birth. The enamel of the permanent teeth is laid down during the first two years. Sections made from the jaw of infants suffering from rickets show the enamel organs of the permanent dentition greatly damaged. There would appear, therefore, to be a close relation between dental caries and rickets. Both are associated with imperfect calcium metabolism.

This brings us to the subject of this lecture—The Photochemical Action of Light. When a beam of sunlight is passed through a glass prism the rays are divided up into different wave lengths, giving us the classical colors of the rainbow. To the left we get the red merging all the way up to the violet at the extreme right. Beyond the violet we have rays which are not detectable to the human eye, which we call the ultra-violet. Beyond this is the x-ray, which also is invisible, and

still beyond electrical vibrations. We can measure the wave length of ultra-violet rays, and we know that they have a certain photochemical action. It is the action of these rays that cause the precipitation of the soluble silver salt on the photographic plate or film. They also have to do with the precipitation of the various salts which are normal constituents of the human body. It has been said for instance on good authority that an individual can take any quantity of iron and that this will have little beneficial effect on his hæmoglobin unless at the same time his body is exposed to untra-violet light. We have learned that ultraviolet rays are essential to the deposition of calcium in the bony structure of the body. In other words, no matter how much calcium is taken in the food the calcium has to get into solution before it gets into the blood stream, and it has to get out of solution and be precipitated before it can be utilized in the construction of bones and teeth. Ultra-violet rays will not penetrate ordinary lead glass. They will not penetrate ordinary clothing. The dense layer of smoke and cloud and haze which surrounds the modern city cuts off a great many ultra-violet rays so that the city sunlight and skylight, especially in winter when every furnace is ejecting huge quantities of smoke, is comparatively void of ultra-violet rays. In this room we are in physical darkness as far as ultra-violet light is concerned.

Diets have been devised free from the so-called vitamines A and D on which experimental animals such as rats, chickens, etc., will develop rickets in a very short time. By providing these vitamines in certain forms, such as sunshine, artificial sunshine or cod-liver oil, rickets, as demonstrated by x-rays of the bones and by determining the calcium and phosphorus content of the blood, can be arrested, cured and prevented if given at the proper time. We find, for instance, that these vitamines are present in butter, but only when the cow is receiving foods such as grass, which has been exposed to the sun, and when the cow herself is living on outdoor life. During the winter when the cow is not exposed to the direct rays of the sun, the butter, cream and milk contain practically no vitamine, and the cow herself frequently develops tuberculosis possibly acquired from a human attendant. The antirachitic vitamine is present in cod-liver oil to four hundred times the extent that it is present in butter. It has been found that the routine use of codliver oil will prevent the development of rickets in infants living

under similar conditions in which control infants readily develop rickets.

In 1918 Huldginsky found that by passing an electric current through a column of mercury in a quartz vacuum that he could produce a light containing a large quantity of ultra-violet light, and that these rays would penetrate the quartz, whereas they did not penetrate ordinary lead glass. Since that time, that is during the last ten years, the use of the quartz lamp has become almost universal, not only in the prevention and treatment of rickets, but in many other diseases which are the direct result of lack of precipitation of the various organic substances which are normal constituents of the human body.

We must conclude, therefore, that the realm of usefulness of ultra-violet light is very great, not only in the treatment and cure of rickets, and tetany, but in many other conditions associated with defective metabolism of salts. Quartz lamps are much more extensively used in Europe than in this country. European physicians are much more enthusiastic regarding their usefulness than physicians in this country. So much so that hospitals in Germany so poor that they cannot afford diapers for their infants invest in quartz lamps, and each infant is given a daily exposure.

During the last year it has been found by Gustenberger in Cleveland that one exposure per week is sufficient to prevent the development of rickets.

During the last year a preparation derived from yeast or ergot, known as ergosterol, has been discovered. It is such a potent preparation that one twenty-thousandth of a milligram daily is sufficient to protect a rat, fed on rachitogenic diet, from rickets. We have here a remedy probably so powerful that its use is dangerous if moderate quantities are exceeded. It would appear, however, that the day is coming when by the universal administration of ergosterol to pregnant women, and to infants during their period of most rapid growth, that is the first two years, that we could so control the calcium metabolism of the body that the bones and teeth would be perfect.

If then, the question of prevention of dental caries has any association with proper calcium metabolism during the formative period of the teeth it would appear that the dentist cannot prevent dental caries because the child is brought to him four or five years too late. It would appear that dental caries of the primary teeth is due to improper prenatal care—due to

the mother not receiving sufficient ultra-violet light or vitamins A and D during pregnancy and that decay in the primary teeth is due to imperfect calcium metabolism during pregnancy, whereas decay of the permanent teeth is due to poor calcium metabolism during the first two years of life, that is, due to diet poor in vitamins A and D, and lack of exposure to the direct rays of the sun. The dentist, therefore, if he intends to prevent dental decay must interest himself in prenatal care and the prevention of rickets in infants.

* * *

Periodontia and the General Practitioner*

D. P. MOWRY, D.D.S., MONTREAL.



WITH Dentistry to-day becoming more and more a specialty of Medicine, it is incumbent upon the General Practitioner in Dentistry to take a more intense and practical interest in the specialties that have developed in the field of dental pathology.

This applies directly to the treatment of diseases affecting the supporting structures of the teeth.

The approach to this subject is made quite simple if one has the correct point of view. The genealogy of dentistry reveals the blacksmith and the barber. The immediate past shows an attitude that is almost entirely mechanical with respect to dental practice.

Research has shown, by histologic and other demonstration, that the teeth and their supporting structures are composed of organic tissues. They are themselves alive and possess the property of reacting to environment, attempting constantly to maintain a balance which has been established through a long heredity. The constructive factor in this heredity has apparently been function as influenced by environment.

Some great writer has said that all life can be described in two words, nutrition and generation. At the present time, and possibly forever, these two factors control the destiny of mankind. The position of responsibility which we hold as having in our care the portals of nutrition makes it imperative that we have the knowledge and skill to keep this part of the body in a healthy and harmonious relation to the whole.

*Read before the Eastern Ontario Dental Association, Ottawa, October, 1928.

One of the routine questions asked by physicians when making an examination of a patient is, "What about your teeth?" The patient gives the answer that has been provided by the dentist. Does that mean that we Canadian dentists can assure the Canadian medical men that our routine patients have no areas of infection at the apices of their teeth, that the gum margins exude no pus and are free from inflammation and that the teeth occlude in such a manner that maximum efficiency is provided in mastication?

This ideal, gentlemen, will not be achieved by the specialists. It is the general practitioner who is responsible for the mass of the people. With the possible exception of Orthodontia I know of no task so inspiring as that which removes infection and restores function. I am quite aware that even routine prophylaxis is hard work but, I ask you, "What is the objection to that?" The professional man is no more immune than anyone else to the moral obligation of giving service in exchange for money.

The responsibility of the dentist to the patient, according to law, is, that he shall have the knowledge and skill necessary to the exercise of his profession. Let us consider for a while this evening some of the minimum requirements with respect to the disease commonly known as pyorrhoea.

As a premise it is essential to have a knowledge of the visible and microscopic structure of the tissues in a state of health. We have as a fundamental the picture of the teeth arranged in opposing arches, one of which, the mandible, is provided with a freely movable joint, the temporo-mandibular. This movement of the lower teeth against the upper provides us with one of the vital keys to dental health. In accordance with the law of relation of form to function, the incisor teeth, as their name implies, are for seizing and cutting; the cuspids and bicuspid for tearing, and the molars for grinding food. The manner in which the condyle of the mandible moves in the mandibular fossa of the temporal bone provides that in the act of incising or cutting the incisor teeth are in contact and under pressure, but the molars are free, while in the act of grinding or mastication the molars and bicuspid are under pressure and the upper incisors overlap the lower incisors but without pressure contact.

One of the next essentials to keep in mind is that the anatomy of the teeth in function is such that the cut or ground

food passes over the surfaces of the teeth in such a manner as to bump against and slightly massage the gum as it clings tightly against the necks of the teeth.

It is necessary to remark that the teeth and surrounding tissues are constantly moistened by the secretion of the salivary and mucous glands which secretion varies constantly in respect to the function of the local tissues and the quality of the blood supplying the glands and tissues. Furthermore, this mouth fluid supports an oral flora which varies constantly, and which research will one day show to have great diagnostic value.

Now what of the microscopic or histological picture? The body is made up of cells arranged into tissues. Some of these tissues are in turn arranged into organs. The blood and lymph are tissues. These cells, tissues, and organs, function as a unit. Applying this to our specific subject we find that the gum is composed of relatively thick epithelial tissue superimposed upon a fibrous connective tissue which is the common union between epithelium and alveolus and between the alveolus and the cementum of the tooth in what is known as the peridental membrane. This connective tissue is very vascular and well supplied with nerves, so that it is the organ of nourishment and response to function for the immediate area.

The body may be said to be in health when there is a balance between the cells, tissues and organs on the one hand and the environment on the other. A specific part of the body, for example: the teeth and supporting structures are in health when there is a relative permanence in their normal condition and relationships. The factor that makes for this permanence is a normal environment.

Briefly, this environment provides sufficient stimulation for the tissues to carry on the functions of life: absorption of food, excretion of waste material, production of energy and reproduction. For a complex structure like the body with normal tissues, one of the absolute essentials is the circulation of the blood. A change in the environment, for example, the stimulation, will cause a change in the circulation; this will interfere with the nourishment of the tissue and the removal of waste, and if continued will change the cell arrangement and tissue structure.

It may seem elementary, but a consideration of inflammation is fundamental to a study of periodontitis. You, no doubt,

know that the affix "itis" means "inflammation of". Inflammation is the local protective reaction of irritated and damaged tissues which still retain vitality. It is an attempt by the body to remove or localize the cause of the irritation. In other words, it is the reaction to changed environment. A study of this subject in any standard work on Pathology, followed by a concentrated study of the bulletins distributed by the Canadian Dental Research Foundation and edited by Dr. Harold K. Box, particularly the "Studies in Periodontal Pathology," and the latest, the "Treatment of the Periodontal Pocket," will give you confidence in the handling of all cases of Pyorrhoea.

In the treatment of every case there are a few routine steps which should become automatic.

Occlusion—

Have the patient close the teeth in centric occlusion. Note the articulation and abnormalities (missing teeth, bridges, plates, narrow arches).

Have patient grind laterally on bicuspid and molars. Note with eye and also with finger on labial or buccal of individual teeth if there is any lateral movement of tooth in its socket.

Have patient incise on anteriors and examine.

Use articulating paper to determine occlusal points of stress and grind teeth or fillings or crowns to restore the relative normal. Note that in this grinding the dental anatomy must be preserved. I quote from House in the September *Cosmos*:

"The occlusal surfaces of the bicuspid and molars are cusps, ridges, sulci, and grooves, thus forming a series of convex and concave surfaces. The sulci, grooves and embrasure spaces are for the purpose of allowing for the free escape of the masticated portions of the food, thereby reducing the resistance to force. A careful study of cases with fine, natural, unworn posterior teeth with ideal occlusion in centric relation, reveals the fact that all opposing contacts are convex surfaces.

"The wearing of the contact surfaces and cusps of the teeth brings about proportionate changes in all parts of the masticating mechanism as well as the facial tissues and character of expression.

"Observation of a number of cases with varying degrees of the natural teeth, where there was no restorative work to

interfere, showed that there was uniform, harmonious wear, and there was no tendency to alveolar disease.

"The application of these factors to orthodontia, periodontia, and operative and prosthetic dentistry is of equal importance."

From this it is evident that there is no escape for the General Practitioner.

Not only do most cases call for grinding to adjust occlusion, but nearly all require modern restorations of old amalgams, crowns, bridgework and the replacement of missing teeth.

One of the reasons for adjusting occlusion before prophylaxis is that the gingival tissues are a valuable aid to diagnosis. This in itself is material for a lecture, and I refer you to the bulletin by Stillman and Box, entitled, "Differential Diagnosis of Early Periodontal Lesions" and "Signs of Incipient Periodontal Disease," issued by the Ontario Dental Association in May, 1925.

Prophylaxis—

The next step is routine prophylaxis, a thorough scaling and polishing of the crowns and necks of the teeth to the base of the normal gingival crevice. This will usually cure the average case of gingivitis.

Pocket Treatment—

After an interval of a few days the individual teeth may be examined for pockets. The normal depth of the gingival crevice is approx. 2mm. The objective of treatment is the obliteration of the pocket and the restoration and maintenance of the normal. For complete details I again refer you to the latest work by Dr. Box, "The Treatment of the Periodontal Pocket." I shall merely state the major steps. Have a clear picture of the tissue involved:—

Cementum.

Periodental Membrane.

Alveolus.

Connective Tissue.

Epithelium.

Have a clear picture of the pocket established with invading epithelium and diseased cementum.

Remove calcific and other deposits on root-surface.

Curet the cementum.

Curet the invading epithelium so as to expose a fresh, freely bleeding connective tissue of the peridental membrane.

Approximate the fresh connective tissue against the curetted cementum and establish a clot of blood as a seal to the wound. Box recommends a Copal varnish to seal this clot. Harsh foods or severe tooth brushing should be avoided until there is evidence of regeneration tissue.

As a closing word and, possibly the most necessary, is the correct use of the tooth brush by the patient and the absolute necessity of a thorough prophylaxis at least every six months.

Describe use of brush by practical demonstration and discuss the theory.

Outline of Steps in Full Denture Construction

R. O. SCHLOSSER, D.D.S., CHICAGO.

(Continued from Last Issue)

7.—THE TEST IMPRESSIONS. Explanation:

The impressions are the patterns for the denture bases and must be developed so as to incorporate the following essential requisites.

Surface adaptation to the supporting tissues. Correct peripheral extension, plus such intimate adaptation that will give simultaneously a seal against ingress of air and full freedom for all functional actions of the border attachments. The completed impressions must be stable, must possess necessary resistance to displacement, and feel comfortable to the patient. In the Maxillary impression, reliefs must be made to avoid interference to normal physiological functions of blood vessels and nerves and to guard against irritation of, or fulcrumage upon the central hard area. To avoid nausea a post-dam is applied.

(a) The Maxillary impression:

- 1.—Check tray preparation in mouth.
- 2.—Glaze the smear on the inside of tray.
- 3.—Measure out quantity (4 mm. layer of soft compound to cover impression side of study cast).
- 4.—Resoften this mass, form into cone, sear the base in the flame, attach to tray and shape up to mexican hat formation, high central mound, deep gutter to accommodate the ridge, high thick flange to assist in placing border tissues, thin across distal border. (This form aids in dis-

placing air, in placing tissue and in the proper distribution of the impression material.)

5.—Chill outer shell of mass to retain the form previously developed.

6.—Soften heel portion by holding in hot water, if this is not soft it prevents correct sealing.

7.—Glaze the printing surface and temper by dipping in warm water.

8.—Develop the Base Impression:

Standing to right and to one side of patient, introduce the tray sideways, rotate until centered, place index fingers under bicuspid portions of rims, press upward slightly first on one side then on the other, allowing air to escape. When compound begins to ooze down in the rear, apply firm central and upward pressure to stop-button until the limit is reached, maintaining sufficient pressure to hold impression in contact with tissues. With fingers of free hand, mould the flange material upward against the buccal, labial and buccal surface of the alveolar ridge. Care should be exercised so the flanges are not thinned out too much or made too high. Next drape the lip over the impression, and by pressure applied to lips and cheeks, complete the adaptation of the flanges. Chill thoroughly by injection of ice water. Remove, place in ice water to allow entire mass to harden.

9.—Fit the base of the Occlusal Support to the ridge. (The Occlusal Support is the Mandibular Tray preparation.) Glaze the impression surface slightly, temper, seat upon the ridge with light pressure, remove, chill in bowl, then replace in the mouth and seat with firm pressure. The patient should experience no discomfort.

10.—Dry the base impression and do the preliminary trim with a sharp knife as follows: Flanges to a thickness of 4 mm. At the distal the trim is done slightly posterior to the junction of the hard and soft palate as denoted by the turn of the compound produced by the action of the soft palate.

11.—Mark position of tissue flexion in the region of the soft palate and back of the maxillary tuberosities. (This flexing can be observed by having the patient alternately open and close the mouth and by saying "Ah".) The marking is done with a soft indelible pencil.

12.—Seat the dried impression to transfer this mark onto it.

13.—Remove the impression from the mouth and trim to the mark obtained.

14.—Replace base impression, check it for stability and resistance to displacement. If any peripheral defects are detected, they must be corrected at this stage. Corrections are made by tracing stick additions.

15.—Develop Occlusion.

(a) Reduce the Maxillary Rim to conform to lip length and flatten its occlusal surface by heating and compressing it, using a moistened cement slab.

(b) Trim away lateral surplus from rim and taper it toward the tray at the distal. Cut "V" shape notches in the bicuspid region. Smear the occlusal surface with cocoa butter.

(c) Place Maxillary Base Impression in the mouth and seat firmly.

(d) Soften the occlusal surface of the Mandibular rim by heating with Alcohol Torch, temper, place into position on the ridge, ask patient first to relax all facial muscles, then direct them to close, thus bringing the lower soften rim into occlusion with the upper until the lips come into contact. Chill before removing from the mouth.

(e) Trim lateral surplus from Mandibular rim, wash off chips, then replace in mouth and check the occlusion. If occlusion disturbs the stability of the Maxillary Base, it should be corrected by re-heating and repeating closure.

16.—Muscle Trimming of Flanges.

(a) Suction trim in three steps.

1.—Heat the upper inner two-thirds of the flange on one side from cuspid region to heel, including the top of flange. Temper, place by seating the cold side of the impression first, seat Maxillary base firmly, then place the Mandibular occlusal support in position, instruct patient to close and suck. Have them repeat this action 3 or 4 times. Then ask them to maintain pressure by keeping jaws closed. This keeps the tissues under tension until the area being acted upon is hardened by chilling.

2.—Repeat the above procedure on the opposite side.

3.—Repeat similar action in the region anteriorly between the cuspid areas. (As the patient closes, the Mandibular Occlusal Support supports the Maxillary base and the sucking produces a muscle pull against the softened area vertically downward. The resistance offered by closure and the presence of the harder outer impression shell, plus the muscle pull, reduces the flange height, and automatically establishes the correct peripheral adaptation.)

(b) The buccinator trim in two steps.

1.—Heat the top and outer edges of the flange from the cuspid regions to the heel portions, temper; place the maxillary base impression in position, seat it firmly, place the mandibular occlusal support and instruct the patient to close the jaws and to move the lips forward and backward, have them repeat the lip movement five or six times. Chill by injection of ice water, remove and place in ice water until thoroughly hardened.

2.—Repeat the above procedure on the opposite flange. (This trim differs from Suction trim primarily in the area

treated and in the direction of the muscle pull, the latter being horizontal. The resultant is a further elimination of the interferences to the free functional activities of the muscular structures attached to the alveolar border.)

(c) The Labial Frenum Trim: Heat the inside and the outside of the impression in the region of the labial frenum temper; place the impression into position and seat it firmly. Support the impression by holding it against the tissues and instruct the patient to pull the upper lip down forcibly, to relax and to repeat the action of the lip. Chill, remove and place in the cold water to harden fully. (This trim cannot be done with closed mouth action. It is impossible to obtain the extreme downward pull of the frenum while the mouth is closed.)

17.—Inspection:

Reseat the impression and check up for over-extension and resultant compression of tissues or tripping of impression because of possible interferences to muscle movements. Such errors are to be corrected by repeating the muscle trims or in certain types of cases the operator has to trim these over-extensions away with the knife. If at this time any peripheral lack of adaptation is found, such errors are occurred by tracing stick additions.

The inspection is completed by a thorough examination out of the mouth, to check the tissue detail, the ridge form and the location of the muscular attachments with the negative of these details as seen on the impression.

18.—The Relief Areas

(a) With the aid of a round-ended instrument of about 4mm. diameter, locate the positions of the anterior and posterior palatine foraminae, mark these positions with a soft indelible pencil. By passing the pencil over the tissue determine the position of the palatine canals and mark them clearly. With the point of the index finger explore the hard central area of the vault, then mark its outline on the tissue.

(b) Dry the impression well, place it in position and seat it firmly to get the above marks transferred to it from the tissues. Remove the impression and score these outlines with the point of a sharp knife or instrument.

(The areas so marked will be relieved by scraping before the impression is boxed-in. The reliefs are made over the foraminae and canals to guard against interference to circulation and nerve function. The central area is relived to guard against possible fulcrumage on or irritation of the thin mucosa covering the bone.)

19.—The Post-dam.

By palpitation with a blunt instrument, or spoon end of a wax spatula, determine the distal outline of the palatal bones and note the vibratory tissue attached thereto; this tissue undergoes vibrations during speech and deglutition, as constructed the impression extends back to this area and the

tissue at rest is in contact with it, but during its vibration there is an intermittent break of contact with a resultant tickling which often produces nausea. To prevent this nausea a small amount of soft black wax is moulded on the impression, this is called the post-dam.

(a) With the indelible pencil mark the position of the post-dam area on the tissue, dry the impression, place it to get the transfer of the mark, remove it and score it with a sharp-pointed instrument.

(b) Dry the impression, warm some carding wax and apply it over the outline, the depth of the post-dam should equal approximately two-thirds of the yield of the tissue under pressure. The wax is fused to the impression surface and anteriorly is made continuous with it. It tapers off to a feather margin laterally, is thin at the median line and heaviest between it and the lateral terminals.

20.—Testing the Impression.

(The post-dam completes the moulding of the impression. As it is to function as the pattern for the Denture Base it should be subjected to a thorough test for Stability and Retention and to see that any test within reason can not only be made satisfactorily, but can be made without causing discomfort for the patient.)

(a) Moisten the impression by dipping in cold water, seat it carefully but firmly. While placing it draw the border tissues out laterally to avoid pinching them and to permit a proper seating. Place the Mandibular occlusal support in the mouth, instruct the patient to close, suck and swallow; by this combined action the patient completes the seating of the impression, withdraws the air and loose movable tissues from between the impression and supporting tissue surface thus permitting adhesion and atmospheric pressure to function to retain the impression during the test.

(b) If, when the impression is tested, the retention is not as good as it was before the post-dam was applied, it is due to having made the dam too thick. This is easily remedied by thinning. If this fails to improve the retention it is possible that some distortion has taken place. Necessary corrections must be made, or new impression taken.

B.—The Mandibular Impression.

1.—Trim away the over extensions of flanges from the base of the mandibular occlusal support with knife.

2.—Seat maxillary impression firmly, it furnishes the occlusal guide and insures the correct placing of lower tray preparation with the lining.

3.—Dry and glaze inner surface of the mandibular base.

4.—Attach a 3 mm. lining of softened compound to the above base and distribute it so as to place more material to the lingual. Develop a gutter formation in the lining.

5.—Glaze the impression surface of the lining and temper it.

6.—Place the mandibular base into position by rotating it

into the mouth, release it, instruct the patient to close and then steer the mandibular wedges into occlusion with the maxillary notches; ask the patient to maintain the rims in contact, to suck and to swallow. Repeat the sucking and swallowing several times then ask them to keep the jaws firmly closed until, by injection of ice water, the mass is chilled. Remove, and allow to harden in ice water. The Maxillary impression is also placed in the water and will not again be placed in the mouth excepting in case it is necessary to take the lower over.

7.—Dry the impression thoroughly, trace the following landmarks by scoring the surface with the knife point or sharp instrument; the external and internal oblique lines, the retro-molar triangle areas and the muscle markings labially and lingually in the anterior portio.

8.—With a sharp knife trim the surplus off to within 1 mm. of the outlines, trim the flanges so as to leave their edges 3 mm. thick and slightly rounded.

9.—Wash the impression to clear it of chips, reseal it carefully but firmly, then test it for stability by pressing downward on the occlusal rim, first on one side then on the other. (If the impression is unstable it has been distorted during or since the removal and most often has to be taken over.)

10.—Checking for over-extensions. (The extensions of surface area is dependent upon the position of the muscular attachments along the alveolar borders and on tissue tolerance.)

Having checked for stability, the patient is asked to close the lips, then to open the mouth wide, if impression becomes unseated it is due to over-extensions. To locate these definitely the impression is again seated, the lip or cheek is pulled up and laterally the tension of tissue helps to find the places offering interferences; these are removed by further knife trimming.

11.—The Heel Corrections:

To insure a perfect surface adaptation at the distal termination of the mandibular impression it is necessary to make a slight tracing stick addition, as follows:

(a) Dry the impression.

(b) Apply a small tracing of fluid compound about the outline of the retro-molar triangle.

(c) Temper the tracing, then place the impression, seating it lightly. Remove and chill.

(d) With the needle point flame of the alcohol torch glaze the joint thoroughly.

(e) Temper, place into position and seat firmly, applying the pressure with the index fingers in the bicuspid region. The mandible is supported by the thumb and middle

fingers. Maintain the pressure and chill by injection of ice water. Remove and allow to harden.

(f) Trim away surplus just beyond the triangle outline. REPEAT THE SAME STEPS ON OPPOSITE HEEL.

12.—Testing the Mandibular Impression:

(a) Wash off chips, then seat impression carefully but firmly. As the impression is being seated ask the patient to raise the tongue, the operator deplects the lip and cheeks to facilitate the adjustment of the tissues. The seating is completed by applying pressure downward and forward in the bicuspid region.

(b) Test for stability by simulating occlusal pressures.

(c) Test for resistance to displacement by alternately pressing downward and outward, then upward and inward.

(d) Test for free movement of muscular border attachments and tissue tolerance.

(If the impression is stable and offers a reasonable degree of resistance to dislodgement during the above tests and produces no discomfort, it is ready to be boxed. If it is not satisfactory or does not meet the tests a new lining is placed and the process is repeated.)

The Impression Technic, as outlined, insures intimate surface adaptation, correct extensions, perfect peripheral seals, freedom for physical and physiological function of the supporting and adjacent tissues: these are all essential for good retention and, in turn, comfort to the patient.

8.—MAKING THE RELIEFS AND BOXING—IN THE IMPRESSIONS.

A.—The reliefs over the foraminæ are made by scraping depression into the surface of the impressions approximately 5 mm. wide and 1 mm. drop in the centre, tapering out to a feather margin. The scraping is best done with a kingsley vulcanite scraper. To insure proper depth a groove is first cut in centre of the area with a hoe excavator.

The reliefs over the canal routes are made about 3 mm. wide and $\frac{1}{4}$ mm. deep.

The relief over the central hard area is made from 1 to $1\frac{1}{2}$ mm. deep and is also finished to a feather margin.

B.—Boxing the maxillary impression.

1.—Dry impression and inspect it for minute defects or creases, these are filled in with some of the boxing wax.

2.—Cut a strip 3 mm. wide from the wax band and apply this as a shoulder to the outside of the flange about $1\frac{1}{2}$ mm. from the periphery and also carry it across at the distal border. Lute or fuse it to impression with hot spatula.

3.—Soften the wax band by passing over the bunsen flame, mould and fuse it to the shoulder so as to have the top of the band 10 mm. above the highest portion of the impression. While the wax is still pliable mould it to give symmetry to

the box. Trim off surplus height from the band and place in cold water to harden.

C.—Boxing the mandibular impression.

1.—Trim the edges of the flanges to $1\frac{1}{2}$ mm. thickness and round them off neatly.

2.—Fit a piece of wax between the lingual flanges and fuse it on about 1 mm. above the periphery.

3.—Cut a 3 mm. strip as for the maxillary impression and apply it to the distal and outside of flanges $1\frac{1}{2}$ mm. above the periphery, fuse it with the hot spatula.

4.—Soften the wax band and apply it to the shoulder so as to have 10 mm. of height anteriorly and 20 mm. at the distal. Mould to symmetry and place in cold water to harden.

9.—MAKING THE CASTS.—(Spence's Plaster is used in preference, because of its great resistance during process of vulcanization.)

A.—For each cast to be poured use 1 ounce of water to from three to four ounces, by bulk, of Spence Plaster.

B.—Equipment used consists of a large plaster bowl, a bone or rigid metal spatula, and a sheet of non-corroding metal, or a Plaster Can cover may be substituted for the latter.

C.—Mixing the Plaster. (For Two Casts.)

Place 2 ounces of water into bowl, add about 4 ounces of Spence Plaster, spatulate thoroughly, make further additions of plaster when mix becomes difficult to spatulate, knead the mass by gripping the sides of the bowl, when the mass assumes a green putty consistency place a small portion onto the metal sheet, agitate it to dispel air and gas bubbles.

D.—Packing the Impression. (Pouring the Casts.)

With the spatula lift a small quantity of the mix from the metal sheet, place into the centre of the impression, tamp it to place with the tip of the index finger, then jarr it by tapping the impression on the bench top till water comes to the surface, add more of the mix and repeat the tamping and jarring until the impression box is filled. Set aside for 1 to 2 hours to harden.

E.—Separating the Casts from the Impressions.

1.—After the casts have hardened, strip the boxing wax off and scrape all wax from the impression as well to facilitate a clean separation.

2.—Hold the modelling compound in water as from 120 to 125° F. for from five to ten minutes; this will soften it so it can be easily removed without injury to the casts. (Do not place the impression in boiling water, this overheats the compound and makes separation difficult.)

3.—Trim the casts neatly, preserve the peripheral ledge and gutter formation, it protects the baseplate area and simplifies the making of the wax patterns.

10.—MAKING THE PERMANENT BASEPLATES. (Vulcanite.)

A.—The Maxillary Wax Pattern.

1.—Warm a sheet of pink wax paper over the bunsen flame till it becomes mouldable, adapt it first to the vault portion, if still soft enough, mould it over the ridge and into the peripheral gutter. Remove from cast and with a plate shears trim off the surplus.

2.—Soften some of the wax and mould it into a roll about 2 mm. thick. Resoften this roll and mould it into the gutter so as to fill it flush. With the hot spatula fuse it to the base and to the cast.

3.—Make a similar roll and mould to form the palatal shoulder, fuse this to the base so that it will not interfere with the setting of the teeth or extend too high up onto the vault portion. Smooth it up neatly with the hot spatula.

4.—When extra thin wax is used it is advisable to add a doubler across the distal of the vault. The palatal and Buccal shoulders should blend into each other. A small brush flame from the alcohol torch helps to put a nice glaze on the wax.

5.—Apply No. 60 Tin foil to the vault portion.

B.—The Mandibular Wax Pattern.

1.—Soften sheet wax, adapt single thickness to entire ridge. Trim off at the periphery.

2.—With a softened wax roll fill the labio-buccal gutter. Fuse to the base and cast.

3.—Add lingual doubler and connect same at the distal with the peripheral buccal shoulder; see that the doubler does not interfere with the proper setting of the teeth. Fuse well to base and cast.

C.—Investing the Wax Patterns.

1.—Check the size of the casts to see that they will fit the Flasks. If too large, trim them down at this time.

2.—Two ounces of water per case, mixed with sufficient investment plaster to make a good stiff mix, is in most cases ample for the first half of the investment. When the plaster is mixed, fill the base of the flask, tamp it well, then agitate it by jarring; place the cast with wax pattern so it is centred in the flask and with firm pressure sink it into the investment. Allow to harden, then trim it up neatly and see that no undercuts are left to lock with the second half.

3.—Apply a coating of sandarac varnish as separating media and allow to set.

4.—For the second half of the investment increase the amount of water to 2½ ounces per case, make this mix as for pouring casts; agitate on the metal sheet, then place some of the investment about the wax pattern and tamp it to place. Make further additions of the plaster and tamp and jar alternately till the flask is a little overfilled, wipe

off plaster from the edge of the flask, place the cover on, place the inverted flask into a press and close with light pressure. Set aside to harden from 1 to 2 hours.

D.—Removing the Wax Patterns from the Investment.

1.—Clean off plaster from the outside of flasks and place them in water at from 120 to 125° F. for 10 minutes.

2.—Open flasks carefully by inserting point of knife blade between flask halves at the rear. Remove as much wax as possible with a spatula.

3.—Dissolve 2 tablespoons of sodium carbonate in about four quarts of water, bringing this to a boil. Place the flask parts in a colander and pour the hot soda solution over the investment. This method removes all wax from the matrix most thoroughly.

4.—Cut waste channels in cast side of investment, make them about 5 mm. wide and 1½ mm. wide, allow a two mm. ledge to separate the channel from the matrix. Connect the channel with the matrix by 3 to 5 gates at the distal and lingual. Wash off all loose plaster.

E.—Packing the Rubber.

1.—Place the upper parts of the flasks over a small flame, allow them to remain till the investment becomes quite WARM.

2.—Strip the cloth from a sheet of rubber and cut a piece large enough to cover the vault portion. Cut the balance of the rubber into strips about 10 mm. wide. Two bases will require about 1½ sheets.

3.—When the matrix plaster reaches a temperature that is intolerable to the fingers, remove from the flame and pack the rubber. Be careful to avoid trapping air between the layers of rubber.

4.—Place two thicknesses of separating cloth over the rubber, assemble the flask, place into press and apply gentle pressure. Place into boiling water for 10 minutes.

5.—Remove from the boiling water, apply the screw pressure firmly; note the amount of separation of the flask at the joint. Remove the flask from the press, open carefully, pour some hot water over the separating cloth and remove it from the rubber. Study the pack, trim off surplus, make necessary additions, replace into boiling water for 5 minutes. Open and check the pack again. If the flask halves were in contact while cloth was in place, a slight further addition of rubber must replace this before the final closure.

6.—Close the flask absolutely, place them in a clamp or compress. They are now ready for the vulcanizer.

F.—Vulcanizing the base plate.

1.—Inspect the vulcanizer to see that it is clean and in good order. Place 6 ounces of clean water into the pot.

2.—Place the flask into the vulc. pot so that they will not touch the water. Adjust the cover and tighten it properly.

Allow the escape valve to remain open till steam is generated. Set temperature regulator at 280. Connect the gas tubes, adjust the time regulator and light the gas.

3.—The time consumed varies with the kind of rubber used and the amount of rubber in the case. The usual time is about 2 hours, 40 minutes, divided as follows: 10 min. for steam to rise, after which the escape valve is closed; 1 hour during which time the temperature regulator remains at 280° F.; One hour at 305° and ½ hour at 320° F.

4.—After the gas flow has been cut off by the regulator, the temperature is allowed to drop for 10 min., then the pot may be placed under cold water to condense the steam, the escape valve is now opened to ascertain that there is no further live steam after which the flasks still in the clamp or compress are allowed to remain under running cold water for 30 min., or until they are absolutely cool.

G.—Removing the Baseplates from the Investment, Cleaning and Trimming them up; Pouring the Mounting Casts and Polishing the Baseplates; Setting the Maxillary anterior teeth and Attaching the Rims.

1.—With a heavy plaster knife open the flasks and by cutting, free the bases from the investment. To avoid cutting or marring the inner surfaces it is best to use the blunt edge of a wax spatula in cleaning out the small plaster particles and any vulcanite beads formed as a result of surface bubbles in the casts. Engine oil applied to the surface will facilitate the removal.

2.—Scrub the bases with a stiff brush, using soap or cleansing powder, rinse and dry them.

3.—With a No. 3 egg-shaped vulcanite bur trim off surplus vulcanite and shape up the periphery neatly, preserving the original impression outline. Smooth the vault of the maxillary base and the lingual surface of the mandibular base. Bridge the lingual gap of the lower base by using a piece of pink wax, mould it into the lingual half of the base and allow it to extend nearly to the centre of the ridge. Do not place any wax into the upper base as it is necessary to have the full ridge contour reproduced in the mounting casts.

4.—To 3 ounces of water add sufficient plaster of paris to make a thick creamy mix, fill the baseplate with this and add enough to make the casts about 10 mm. thick. Allow the casts to harden, then separate the bases from them and polish as one would a finished denture. Scrub them up and replace onto the mounting casts. (The teeth selected for the case should have been procured in the interval.)

5.—Set the maxillary anterior teeth according to where good judgment would indicate, giving due consideration to arch form, axial alignment and contour requirement. This setting is tentative, and subject to correction.

6.—Smear the ridge surface of the bicuspid-molar region of the maxillary base and the entire ridge surface of mandibular base with fluid modelling compound. To the upper,

attach compound rings in the smeared region, the length of the cuspids furnishing the index for length anteriorly, at the distal the rims should taper upward to the base. In the bicuspid region, the width is to be about 6 mm., at the distal from nine to ten mm. The mandibular rim should be made about ten mm. high, anteriorly it should be from 4 to 5 mm. wide and should taper out to about ten mm. in the molar region. The rim should be centred over the ridge and be symmetrical.

Explanation.

The use of permanent, well fitting baseplates of vulcanite, or gold if preferred, is an essential of correct registrations of the positional relation of the ridges supporting them; they also afford a better opportunity to work out good restorations of the lost facial dimensions and contours. The tentative setting of the maxillary anterior teeth obviates the marking of the high and low lip lines, of the median, incisal edge and cuspid lines as previously practised. The time required, if they need to be reset, is hardly more than used to be given to the marking of lines and the modification of the maxillary contour rim..

11.—ESTABLISHING THE INTER-MAXILLARY SPACE OR ACCEPTABLE JAW OPENING; CHECKING THE TOOTH SELECTION AND THE ARRANGEMENT OF THE MAXILLARY ANTERIOR AND RESTORING THE LOST FACIAL DIMENSIONS AND CONTOURS.

A.—Check the fit of the Mandibular Baseplate.

B.—Check the fit of the Maxillary Baseplate.

(The Bases should have been subjected to thorough inspection and if either the stability or retention is below requirement corrections must be made at this time or the bases discarded and new ones made.)

C.—Check the selection of the Teeth for Harmony of Type, Form, Size and Color. (If they do not comply with the requirements of good Esthetics, make a new selection and note same.)

D.—Check the arrangement of the teeth set; and either reset them at this time, or make notations of desired changes for later reference.

E.—Establish the Intermaxillary Space.

1.—Check the form, dimension and position of the maxillary rim and see that it offers no interference to the free mandibular movements. Make corrections as needed. Lubricate the occlusal surface with a smear of cocoa butter and seat the base firmly.

2.—Soften the occlusal surface of the mandibular rim by heating with the flame of the alcohol torch, temper, place into position on the ridge; instruct the patient to relax the muscles of the face, to draw the jaw in and to close gently till the lips make contact. Chill, remove and trim away the lateral surface from the mandibular rim.

3.—Replace the bases in the mouth. Remove the towel or napkin, ask the patient to step to the floor and make a study of the restoration. View it from the front, the left and the right profile. Make necessary modification by adding to, or taking from, the fullness of the rims. Repeat the study and continue the modification until the desired result is obtained.

4.—Check once more to see that neither the rims nor baseplates interfere with the free movements of the mandible.

12.—RECORDING THE POSITIONAL RELATIONS OF THE RIDGES, TRANSFERRING THE BASEPLATES TO THE ARTICULATOR AND SETTING THE ARTICULATOR CONDYLE GUIDE INCLINATIONS.

A.—Cut off about 3 mm. of the height of the mandibular rim to make room for the recording wax.

B.—Mark the position of the Condyle centre by drawing a line from the upper border of the external auditory meatus toward the corner of the eye, then make a cross by drawing a line about 12 mm. in front of the tensed anterior border of the meatus.

C.—Adjust the condyle rods of the face bow to these marks so the calibrations show equal readings with very light tension, lock the rods firmly.

D.—The Facebow Record.

Place the bases into the mouth and seat them firmly. Soften a half sheet of pink wax, place it over the prongs of the facebow fork so as to have about 3 mm. of wax above and below; resoften the wax, place it against the occlusal surface of the maxillary rim, ask the patient to close, bringing the mandibular rim into the under side of the wax gently. Remove the fork from the mouth and harden the wax by chilling. Replace the fork and instruct the patient to close the jaws so as to hold the fork firmly. Slide the locking clamp of the bow over the stem of the fork, adjust the condyle rods over the marks previously made and lock the clamp tightly. Check this registration by releasing the condyle rods and moving them out and in, to see that the adjustment was not disturbed during the locking. Remove the record and denture bases from the mouth.

Explanation.

This record registers the position of the maxillary ridge in its relation to the Cranial Base and Condyle centres or Glenoid cavities. It is used to establish the correct position of the Maxillary Mounting Cast upon the articulator.

When obtaining this record, as well as the Mouth Record of Centric and protrusive relation, the wax must always be soft and great care should be taken to avoid penetration of the wax, lest a strain be placed on the resilient supporting tissues.

E.—Attaching the Maxillary Cast.

1.—Place the upper mounting ring onto the articulator and screw it up tight.

2.—Adjust the condyle rods to the shaft terminals so there is slight tension and that there is an equal setting of the calibrations.

3.—Support the face bow anteriorly in such manner as to hold the Incisal edges of the teeth just above the vertical centre of the articulator space. Place the mounting cast into the base and seat it onto the wax recording surface. With a mix of plaster attach the cast to the mounting ring. Allow the plaster to harden, remove the base from the cast. Clean the base, trim off surplus plaster and wipe the articulator clean with a damp towel.

F.—The Registration of Centric Relation.

1.—Dip the maxillary base in cold water and place it into the mouth, seat it well.

2.—Apply the roll of soft wax about 5 to 6 mm. in diameter to the occlusal surface of the wax mandibular rim, pull the upper surface of the wax roll by passing a small brush flame over it. Place the mandibular base onto the ridge, seat it firmly. Instruct the patient to relax the muscles of the face; place the index finger on the patient's chin to ascertain the absence of strain, then ask them to close gently. Remove and place into ice water to chill the wax.

3.—Replace the bases with the hardened record into the mouth, ask the patient to open slightly, close gently, to repeat the opening and closing slowly. There should be a simultaneous closing of the entire occluding surfaces and the patient should experience no discomfort when applying firm pressure. This would indicate that the registration was accurate and the pressure applied by means of the occlusion was evenly distributed or balanced. With this interposed wax, check up to see that the bite opening is acceptable, as this record having registered the positional relation of mandibular ridge to the entire maxillary element should also register the accepted intermaxillary space. It is used to establish the position of the mandibular mounting cast and the desirable amount of denture space on the articulator.

G.—Attaching the Mandibular Mounting Cast.

1.—Place a piece of thin paper over the lower jaw member of the articulator before fastening the lower mounting ring. This helps to keep it clean of plaster during the mounting.

2.—Replace the maxillary base onto the articulator, place the mandibular cast into the base, then assemble the bases with the mouth record of centric relation, hold firmly together and check up for possible interference to closure of

the articulator jaws due oversize of the cast. Trim away interferences before mixing the plaster.

3.—Make a mix of plaster, fill the openings in the mounting ring, add sufficient plaster to attach the cast, maintain the articulator jaws in centric relation and close them till the incisor pin, which should be set flush with the top of the sleeve, touches the incisal guide plane. Allow the plaster to harden.

H.—Checking the Registration and the Mounting back in the Mouth with the aid of an Articulator Record of Centric Relation.

1.—Either by using a new piece of wax or by making additions to the mouth record, develop a record of centric relation on the articulator which registered simultaneously, occlusion with the entire maxillary arch. Chill this record and trim it to the bucco-occlusal and labio-incisal angle. Observe care to avoid a false closure and inspect the record on the instrument before placing it in the mouth.

2.—Replace the bases with the record into the mouth, check the positional relation by visual and digital examination. Ascertain from the patient whether the pressure applied is evenly distributed. If they experience discomfort, there is unequal distribution. Any errors detected, call for correction or the making of new records.

Explanation relative to Steps F. G. and H.

The Mouth Rest Record of Centric Relation is of all records, the most important in the construction of artificial dentures. Ultimate success is only possible when this relation has been correctly recorded or registered. Failure to accomplish it always results in impaired functioning of the dentures; producing a train of ills among which may be mentioned; Malocclusion, instability of the dentures, undesirable tissue alterations and mental, as well as physical, discomfort.

It is therefore also necessary that errors be strictly guarded against when the mandibular cast is being mounted and when the articulator record is being made and used, as in the later step of checking.

I.—The Registration of the Protrusive Relation.

1.—Place the maxillary base in the mouth and seat it firmly.

2.—Place a 5 mm. roll of very soft wax onto the occlusal surface of the mandibular rim, pool the upper surface of the wax, place the mandibular base onto the ridge; ask the patient to relax the muscles of the face, then instruct him to protrude the jaw and to close, approximately about 6 mm. forward of the centric position; have the patient open slightly and close again, note to see that the entire recording surface makes simultaneous contact and that the bases are not distributed during the closure.

3. Remove the bases and record from the mouth and as-

semble them carefully to avoid distortion of the still soft wax, chill by immersing in cold water. Trim the upper surface of the record to the labio-incisal and the bucco-occlusal angles.

4.—Replace the bases and record into the mouth and check this registration by visual and digital examination both in the unstrained and strained relations. Ascertain from the patient by interpretation their perceptibility of contact and pressure distribution. Correction must be made so that the occlusion is balanced.

J.—Using the Protrusive relation Record to determine the Horizontal Articular Condyle Guide Inclination.

(1) Having removed the bases from the mouth, seat them firmly on their respective mounting casts, place the record just made upon the mandibular rim, release the condyle adjustment locknuts, raise the incisal guide pin in its sleeve about 15 mm.; by closing of the articulator jaws bring the maxillary rim into contact with the upper recording surface, move the adjustments till the rims are both securely held Horizontal Indication is read and recorded, preferably with an indelible pencil on the plaster mount.

(2) If the excursions registered by the protrusion are not exactly 6 mm. but one is at least 4 mm. and the other still 1mm. from the limit of the instrument, the record may be used if upon checking it is found correct.

(3) When the patients fail to register acceptably in protrusion it is at times necessary to take separate records of right and left lateral to set the the respective indications. A rechecking for possible interferences to free mandibular movement may disclose the cause of failure.

K.—Making the Articulator Record for Checking the Protrusive Relation.

(1) With the Posts set to show lateral readings Zero, place a soft roll of wax on the mandibular rim, close the jaws to show a protrusion of about 6 mm. till the wax is brought into contact with the maxillary rim, chill the wax and trim to the inciso-labial and bucco-occlusal margin. Replace on the articulator and check to see that no distortion has taken place.

(2) Replace the bases into the mouth, place the articulator record onto the mandibular rim, ask the patient to close gently; observe to see if the closure is simultaneous over the entire area. Now ask the patient to close firmly, or to bite, and note first if you can detect a displacement of either base, then ask the patient to interpret the pressure distribution. If this is uneven, balance it by slight wax additions or, if need be, take new records until upon checking the patient cannot displace the bases nor experience any discomfort. Replace them on the articulator, and if at variance with the adjustment the indication is reset to the corrected indication.

Explanation.—Attention is called at this time to the fact that the instrument used is not a so-called anatomical articulator, giving exact reproductions of relations and positions of the several factors of the masticatory mechanism; but rather that it is but a mechanical devise permitting the establishment of equivalents of the above mentioned relations and positions, which equivalents make it possible to develop upon the instrument occlusions of the teeth that will function as such in the mouth. It is the position of the separate dentures bases as supported by the tissues of lesser or greater resiliency, that is registered and from the positional relations as registered, the indication for the articulator condyle guidances are deducted. The logic of the application lies in the ability to develop balanced occlusions with the interposed wax records. The latter can be carried out for lateral and intermediate relations as well as for centric and protrusive relations. Errors may be detected and can be eliminated in the wax records by proper application of the technique.

L.—Setting the Lateral Indications by Formula.

- (1) The Hanau Formula is given below.

Lateral equals Horizontal divided by 8 plus 12, or
Horizontal divided by 8 plus 12 equals Lateral.

- (2) The above formula is applied to the Horizontal Indication as recorded, and the posts of the articulator are rotated or set to the resultant degree of Lateral Indication.

Example:

Horizontal divided by 8 plus 12 equals Lateral.

0	divided by 8 plus 12 equals	12.
8	divided by 8 plus 12 equals	13.
16	divided by 8 plus 12 equals	14.
32	divided by 8 plus 12 equals	16.
64	divided by 8 plus 12 equals	20.

While Minus Indication are at times recorded for the Horizontal, this is disregarded in the setting of the Lateral Indication, a minus lateral would constitute the equivalent of ankylosis of the Temporo-Mandibular Joint.

- (3) After the lateral indications are set, they should be recorded with pencil on the plaster mount.

Explanation.—The lateral indications thus obtained, provide the necessary freedom for the lateral excursions of the Jaw Members of the articulator; in fact, the amount of freedom somewhat exceeds that normally required within the functional range, yet this aids particularly in avoiding cuspal interferences during the setting of the teeth and in eliminating them during the Grinding-In process.

(Before dismissing the patient at this time, be certain notations relative to contemplated changes in tooth selection or arrangements and contour fullness have been made.)



---Of Human Interest

This Department is Conducted by
G. MERRICK SINGLETON, D.D.S.

I invite you to read my page, and hope that you may find here, as I have, something which will cause you, for a short time at least, to forget a few of the many perplexities of our daily round.—G.M.S.



The Spirit of Christmas



INSEPARABLY associated in my mind, and I believe in the minds of many, with the general spirit of Christmas, proclaiming its message of "Peace and Goodwill among men," is the memory of the great Charles Dickens, and his immortal classic of Christmas-tide, "The Christmas Carol."

In the reading of it once more, especially at this season, as is my custom yearly,—I think that we get nearer to the proper spirit in which this great festival of the year should be approached. By almost universal consent, this short story has taken its deserved place among the masterpieces of English literature. All Dickens' great gift of humour and pathos seem here reflected. It is a great painting in miniature—a perfect gem.

None but a fine imagination would have conceived the supernatural agency that works old Scrooge's moral regeneration—the ghosts of Christmas past, present, and to come, each in turn speak to the wizened heart of the old miser, so that, almost unwittingly, he is softened by the tender memories of childhood, warmed by sympathy for those who struggle and suffer, and appalled by the prospect of his own ultimate desolation and black solitude.

Then the episodes:

The scenes to which these ghostly visitants convey Scrooge; the story of his earlier years as shown in the vision; the home of the Cratchits, and poor little Tiny Tim; the party given by Scrooge's nephew, and even before all these, his own tragic and terrible interview with Marley's Ghost.

To those who for some time have neglected to read this powerful story with its Christmas message, penned by a master-hand, I would suggest, before the present Season passes, that you again take it from your bookshelves, because if it is read, there will be one more humanizing influence at work among men.

Oral Health



Vol. 18

TORONTO, DECEMBER, 1928

No. 12

EDITOR:

WALLACE SECCOMBE, D.D.S., F.A.C.D., Toronto, Ont.

CONTRIBUTING EDITORS:

C. N. JOHNSON, M.A., D.D.S., F.A.C.D., Chicago.

W. E. CUMMER, D.D.S., F.A.C.D., Toronto.

Entered as Second-Class Matter at the Post Office Department,
Ottawa.

Subscription Price, Canada and United States, two dollars per annum; elsewhere three dollars. Single Copies 25c. Free distribution to all members of the Dental Profession practising within the Dominion of Canada and Newfoundland.

Original Communications, Book Reviews, Exchanges, Society Reports, Personal Items and other Correspondence should be addressed to the Editor Oral Health, 102 Wells Hill Avenue, Toronto 10, Canada.

Subscriptions and all business Communications should be addressed to The Publishers, Oral Health, Royal Bank Building, 269 College St., Toronto, 2, Can.

EDITORIAL



Here's Health to You and Glee to You
And Merriest Christmas Cheer,
And may the New Year be to you
Your Brightest, Happiest Year.



The New Year in Dentistry



THE path of human progress is never a continuously upward climb. To-day we may descend into the valley, and to-morrow climb to the hilltop. Neither is the road always straight and smooth, but frequently mounts by winding path. When the traveller loses his way he is compelled to turn about, and retrace his steps before

starting onward once more. But surely humanity's general direction is always forward and upward. Eddies may be observed in the Niagara Gorge where the waters swirl back toward the Falls, but the mighty river continues to flow on to the sea.

None of us doubt the ultimate achievement of Dentistry, but if her journeyings during the past decade were charted, would the graph show her in the valley or on the hilltop? An historic people once wandered in the wilderness for forty years, complaining about their leadership and their unsatisfactory internal and external relations. In spite of all our progress are we not still in the wilderness of doubt and uncertainty? Dentistry's "Promised Land" will be occupied just so soon as error and empiricism give place to scientific knowledge, courage and optimism.

It took two generations of "Wilderness" to cure the Israelites. Forty years seems a long period for preparation, but need we be reminded that Hunter's historic indictment of the accepted dental practice of earlier years, was uttered in 1911, almost a generation ago. Hunter's accusation thrust Dentistry deeper into the wilderness just when she considered herself ready to emerge. His rather startling announcement precipitated Dentistry into one of those discouraging periods when "halt" and "reverse order" were the inevitable commands of the day. But, nevertheless, with equal truth it may be said, that historically this period will always mark an outstanding milestone in the progress of the dental profession. In a sense it marked the beginning of a dental revolution, when the profession came to realize that it must change its fundamentals, and reconstruct and rebuild on new foundations.

It is with this programme in mind that the Dental Profession looks forward to the New Year, 1929, hoping that, with diligent study and research, extensive scientific knowledge may be revealed to further improve dental practice.

New times demand new measures and new men;
The world advances, and in time outgrows
The laws that in our fathers' day were best;
And doubtless, after us, some purer scheme
Will be shaped out by wiser ones than we,
Made wiser by the steady growth of truth.

—Lowell.

7 DAYS

THIS BOOK MAY BE KEPT FOR
7 DAYS ONLY
IT CANNOT BE RENEWED

#1
H.R. Abbott
Mem. Lib.

R.

Harry R. Abbott Memorial Library

FACULTY OF DENTISTRY
124 EDWARD ST.
TORONTO, ONT.

